# IISER Kolkata Central Instrument Facility (iCIF)

- Outreach programs
- Instruments and Booking details

The iCIF supports the research needs of both internal and external users—including academic institutions and industry—by providing access to a wide range of advanced scientific instruments. This facility reflects our strong commitment to maintaining and elevating research standards to meet global benchmarks.

A variety of state-of-the-art instruments are located at the IISER Kolkata Mohanpur campus, with several more already operational and additional equipment scheduled for installation. We are proud to offer these services through a fully online booking system designed to minimize human intervention and ensure smooth, transparent access. As we continue to grow and refine our services, we welcome your feedback and suggestions. Please feel free to reach out to us at **cif@iiserkol.ac.in**.

## iCIF Administration

Dean (Research and Development)

↓

Coordinator iCIF and HoDs

↓

Manager iCIF

↓

Operators of instruments

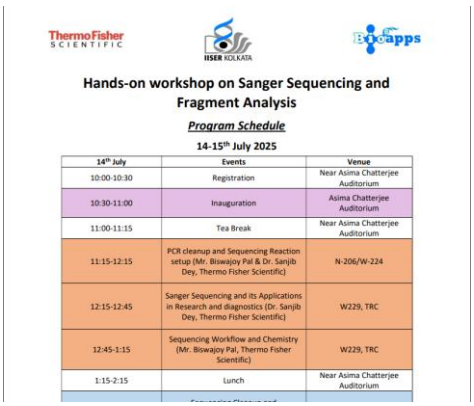
Contact: cif@iiserkol.ac.in
Phone no: +91-033-61360000 (ext: 2208)

# Outreach Programs

Outreach programs establish mutually beneficial partnerships between educational institutions and sponsoring organizations—including corporations, community groups, and government agencies. These collaborations bring valuable resources, specialized knowledge, and real-world perspectives into the learning environment, while also helping sponsors advance their goals and support the broader community. Such programs enrich learning by offering varied educational pathways, fostering civic engagement, encouraging positive behaviour change, and delivering targeted instruction on important topics. They enable students, professionals, and educators to link classroom concepts with real-world issues, build essential life skills, and contribute meaningfully to community development. For sponsoring entities, outreach programs create opportunities to address local challenges, promote key initiatives, strengthen brand presence, and share mission-focused information. They also provide a powerful platform for organizations to engage young audiences in ways that are both meaningful and long-lasting.

Effective outreach initiatives rely on well-aligned educational content, engaging and memorable activities, developmentally appropriate design, and clear methods for measuring impact. When thoughtfully executed, these programs generate enduring positive outcomes—supporting community growth, empowering future leaders, and fostering long-term partnerships between educational institutions and their sponsors.

## iCIF played important roles in organizing following events




| 14th July | Events | Venue |
|---|---|---|
| 10:00-10:30 | Registration | Near Asima Chatterjee Auditorium |
| 10:30-11:00 | Inauguration | Asima Chatterjee Auditorium |
| 11:00-11:15 | Tea Break | Near Asima Chatterjee Auditorium |
| 11:15-12:15 | PCR cleanup and Sequencing Reaction setup (Mr. Biswajoy Pal & Dr. Sanjib Dey, Thermo Fisher Scientific) | N-206/W-224 |
| 12:15-12:45 | Sanger Sequencing and its Applications in Research and diagnostics (Dr. Sanjib Dey, Thermo Fisher Scientific) | W229, TRC |
| 12:45-1:15 | Sequencing Workflow and Chemistry (Mr. Biswajoy Pal, Thermo Fisher Scientific) | W229, TRC |
| 1:15-2:15 | Lunch | Near Asima Chatterjee Auditorium |

# Instruments and Booking details

1. Lists of instruments under **DBS**, **DCS**, **DES.**
2. **Click** on the **name** of the given instrument, will lead you to the instrument details.
3. **Internal users**: Book instrument by following Department Booking Policy.
4. **External users**: For instrument booking and payment, contact respective operators.
5. *Instrument details* and *charges* for every instrument are available in the following sections.
6. Please find the bank details and payment form.

# Department of Biological Sciences

Please Note: a) **Click** on the **name** of the given instrument, will lead you to instrument details.
b) **Internal users**: Book instrument by following Department Booking Policy.
c) **External users**: For instrument booking and payment contact respective operators.
d) *Instrument details* and *charges* for every instrument are available in the following sections.

| Sl. No. | Instrument Name | Machine make | Name of Faculty-in-charge | Operator's Name and mail id |
|---|---|---|---|---|
| 1 | Confocal microscope | ECLIPSe Ti2-E (Nikon) | Prof. Bidisha Sinha | Mr. Ritabrata Ghosh ritabrata.ghosh@iiserkol.ac.in |
| 2 | Confocal microscope **iSTEM id: 1941740** | CLSM 710 (Carl Zeiss) | Prof. Bidisha Sinha | Mr. Ritabrata Ghosh ritabrata.ghosh@iiserkol.ac.in |
| 3 | Inverted microscope with Apotome **iSTEM id: 1941741** | Axioobserver (Carl Zeiss) | Prof. Bidisha Sinha | Mr. Ritabrata Ghosh ritabrata.ghosh@iiserkol.ac.in |
| 4 | Epi-fluorescence microscope **iSTEM id: 1941743** | IX83 with epi-fluorescence attachment (Olympus) | Prof. Bidisha Sinha | Mr. Ritabrata Ghosh ritabrata.ghosh@iiserkol.ac.in |
| 5 | Spinning Disk with epi-fluorescence microscope (DBT Builder Facility) **iSTEM id: 1961608** | IX83 & IX73 With Spinning Disk attachment (Olympus) | Prof. Bidisha Sinha | Ms. Shreya Ghosh shreya08@iiserkol.ac.in |
| 6 | STED Microscope **iSTEM id: 1961608** | IX83 With STED Microscope attachment (Olympus) | Prof. Bidisha Sinha | Ms. Shreya Ghosh shreya08@iiserkol.ac.in |
| 7 | Flow cytometer **iSTEM id: 1961627** | FACS LSRFortessa (BECTON DICKINSON) | Prof. Malancha Ta | Mr. Tamal Ghosh tamal.ghosh@iiserkol.ac.in |
| 8 | Flow cytometer **iSTEM id:1958234** | FACS Aria III (BECTON DICKINSON) | Prof. Malancha Ta | Mr. Tamal Ghosh tamal.ghosh@iiserkol.ac.in |

# Department of Biological Sciences

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b) **Internal users**: Book instrument by following Department Booking Policy.
c) **External users**: For instrument booking and payment contact respective operators.
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| Sl. No. | Instrument Name | Machine make | Name of Faculty-in-charge | Operator's Name and mail id |
|---|---|---|---|---|
| 9 | Automated Capillary DNA Sequencer **iSTEM: 1961610** | SEQSTUDIO 8 FLEX (Applied Biosystems) | Prof. Amirul Islam Mallick | Mr. Debabrata Sutradhar sequencing@iiserkol.ac.in |
| 10 | Metabolic Flux Analyzer System **iSTEM id: 1961610** | Seahorse XFe24 Analyzer (MEDISPEC) | Dr. Sumit Sen Santara | Dr. Soumik Sao analyticalfacility.dbs@iiserkol.ac.in |
| 11 | HPLC System (DLS-MALS) **1961612** | DAWN 8 (WATERS) | Prof. Supratim Datta | Dr. Soumik Sao analyticalfacility.dbs@iiserkol.ac.in |
| 12 | Isothermal titration calorimeter **iSTEM id: 1942981** | PEAQ-ITC (Malvern) | Dr. Babu Sudhamalla | Mr. Tamal Ghosh tamal.ghosh@iiserkol.ac.in |
| 13 | Real-time biomolecular interaction analysis **iSTEM id: 1961747** | Biacore T200 (GE) | Dr. Rahul Das | Dr. Soumik Sao analyticalfacility.dbs@iiserkol.ac.in |
| 14 | Multimode plate reader **iSTEM id: 1961616** | Cytation 5 Cell Imaging Multi-Mode Reader (CYT5MV) (Agilent) | Dr. Rahul Das | Dr. Soumik Sao analyticalfacility.dbs@iiserkol.ac.in |
| 15 | CD Spectrometer **iSTEM id: 1961617** | J-1500-450 (Jasco) | Dr. Babu Sudhamalla | Dr. Soumik Sao analyticalfacility.dbs@iiserkol.ac.in |
| 16 | Confocal microscope **iSTEM id: 1961618** | DMi8 (Leica) | Dr. Arnab Gupta | |

# Department of Chemical Sciences

Please Note: a) **Click** on the **name** of the given instrument, will lead you to instrument details.
b) **Internal users**: Book instrument by following Department Booking Policy.
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d) *Instrument details* and *charges* for every instrument are available in the following sections.

| Sl. No. | **Instrument Name** | **Machine make** | **Name of Faculty-in-charge** | **Operator's Name and mail id** |
|---|---|---|---|---|
| **1** | **Fluorescence Lifetime Imaging Microscope (FLIM)**<br>**iSTEM id: 1961912** | Becker & Hickl | Prof. Pradipta Purkayastha | Trained students |
| **2** | **TGA/DSC** | Perkin Elmer | Dr. Ratheesh K Vijayaraghavan | Mr. Uday Bhanu Sen |
| **3** | **TEM**<br>**iSTEM id: 1948276** | JEOL<br>TEM-2100-Plus | Prof. Venkataramanan M and Dr. Dibyendu Das | Ms. Ankana Kanji |
| **4** | **TEM**<br>**iSTEM id: 1948276** | JEOL-TEM 2100F | Prof. Venkataramanan Mahalingam and Dr. Dibyendu Das | Ms. Ankana Kanji |
| **5** | **Bruker Avance III 500 MHz NMR Spectrometer**<br>**iSTEM id: 1961771** | Bruker | Prof. Balaram Mukhopadhyay | Mr. Arnab Chattopadhyay&Parves Sajjad Mondal |
| **6** | **Bruker Avance NEO 500 MHz NMR Spectrometer**<br>**iSTEM id: 1961770** | Bruker | Prof. Balaram Mukhopadhyay | Mr. Arnab Chattopadhyay<br>&Parves Sajjad Mondal |
| **7** | **JNMECZL 400S**<br>Jeol 400 MH2 NMR Spectrometer<br>**iSTEM id: 1961773** | Jeol | Prof. B. Mukhopadhyay | Mr. Arnab Chattopadhyay<br>& Parves Sajjad Mondal |
| **8** | **Bruker Avance NEO 400 MHz NMR Spectrometer**<br>**iSTEM id: 1961772** | Bruker | Prof. Balaram Mukhopadhyay | Mr. Arnab Chattopadhyay<br>&Parves Sajjad Mondal |

# Department of Chemical Sciences

Please Note: a) **Click** on the **name** of the given instrument, will lead you to instrument details.
b) **Internal users**: Book instrument by following Department Booking Policy.
c) **External users**: For instrument booking and payment contact respective operators.
d) *Instrument details* and *charges* for every instrument are available in the following sections.

| Sl. No. | **Instrument Name** | **Machine make** | **Name of Faculty-in-charge** | **Operator's Name and mail id** |
|---|---|---|---|---|
| **9** | **EPR Instrument**<br>(X-Band and Q-Band)<br>Q Band not operative as Liquid Helium is required)<br>**iSTEM id: 1942242** | Bruker | Dr. Parna Gupta | Mr. Uday Bhanu Sen |
| **10** | **FLS 1000** | Edinburgh Instruments | Dr. Ratheesh K Vijayaraghavan | Mrs. Tania Roy |
| **11** | **Xta LAb Synergy-I Single Crystal X-Ray Diffractometer** | Rigaku | Prof. Rahul Banerjee | Mrs. Piyali Bose |
| **12** | **Single Crystal X-Ray Diffractometer**<br>**D8 Quest**<br>**iSTEM: 1961931** | Bruker | Prof. Rahul Banerjee | Mrs. Piyali Bose |
| **13** | **Miniflex-600 Benchtop Powder X-Ray Diffractometer**<br>**iSTEM id: 1942977** | Rigaku | Prof. Rahul Banerjee | Dr. K Srikanth |
| **14** | **Rigaku SmartLab SE Powder X-Ray Diffractometer**<br>**iSTEM id: 1942976** | Rigaku | Prof. Rahul Banerjee | Mrs. Piyali Bose |
| **15** | **FESEM SUPRA 55 VP** | CARL ZEISS | Prof. Rahul Banerjee | Mr. Kashinath Sahu |
| **16** | **FESEM JSM-IT800**<br>**iSTEM id: 1942245** | JEOL | Prof. Rahul Banerjee | Mr. Kashinath Sahu |
| **17** | **2400 Series II ELEMENTAL ANALYZER**<br>**iSTEM id: 1941745** | Perkin Elmer | Dr. Parna Gupta | Mr. Tania Roy |

# Department of Chemical Sciences

Please Note: a) **Click** on the **name** of the given instrument, will lead you to instrument details.
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d) *Instrument details* and *charges* for every instrument are available in the following sections.

| Sl. No. | **Instrument Name** | **Machine make** | **Name of Faculty-in-charge** | **Operator's Name and mail id** |
|---|---|---|---|---|
| **18** | **High Resolution Atomic Force Microscope (AFM) Cypher ES -HV Environmental**<br>**iSTEM id: 1961929** | Oxford Instruments<br>Asylum Research Inc. | Prof. R. Vijayaraghvan<br>Dr. Dibyendu Das | Mr. Soumen Mondal |
| **19** | **Table Top Atomic Force Microscope (AFM) MFP 3D Origin**<br>**iSTEM id: 1961928** | Oxford Instruments<br>Asylum Research Inc. | Prof. R. Vijayaraghvan<br>Prof. Rahul Banerjee | Mr. Soumen Mondal |
| **20** | **X- Ray Photoelectron Spectroscopy**<br>**iSTEM i1961927** | Physical Electronics<br>ULVAC- PHI | Prof. Sayan Bhattacharya<br>Prof. Sayam Sen Gupta | Mr. Mrinal Kanti Garai |
| **21** | **Rheometer**<br>**iSTEM id: 1961974** | Anton-Paar | Dr. Dibyendu Das | Mrs. Tania Roy/ Mr. Parves Sajjad Mondal |
| **22** | **HRMS**<br>**iSTEM id: 1961720** | WATERS | Prof. Biplab Maji | Mr. Tania Roy/ Mr. Anshuman Singh |
| **23** | **Atomic Force Microscopy (AFM)**<br>**iSTEM id: 1961929** | Oxford Instruments MFP-3D Infinity | Dr. Dibyendu Das | Mr. Soumen Mondal and trained student operators |
| **24** | **Peptide Synthesizer** | CEM, Liberty Blue | Dr. Dibyendu Das | Mr. Parves Sajjad Mondal |
| **25** | **Steady-State and Time-Resolved Spectrofluorometer**<br>**iSTEM id: 1963400** | FS5 v2 (Edinburgh Instruments) | Prof. P Purakayastha | Trained Students |

# Department of Earth Sciences

Please Note: a) **Click** on the **name** of the given instrument, will lead you to instrument details.
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c) **External users**: For instrument booking and payment contact respective operators.
d) *Instrument details* and *charges* for every instrument are available in the following sections.

| Sl. No. | **Instrument Name** | **Machine make** | **Name of Faculty-in-charge** | **Operator's Name** |
|---|---|---|---|---|
| **1** | **Two Isotope Ratio Mass Spectrometer (IRMS) DELTA V PLUS**<br><br>**Peripherals- Gas Bench II, Flash 2000 (Elemental Analyser)**<br>**iSTEM id: 1961592** | Thermo Fisher Scientific | Prof. Prasanta Sanyal | Mr. Mahesh Ghosh (mahesh.jta@iiserkol.ac.in) |
| **2** | **Isotope Ratio Mass Spectrometer (IRMS) DELTA V PLUS Peripherals- GC-TC Isolink and Kiel IV Carbonate)**<br>**iSTEM id: 1961593** | Thermo Fisher Scientific | Prof. Prasanta Sanyal | Mr. Mahesh Ghosh (mahesh.jta@iiserkol.ac.in) |
| **3** | **Liquid Chromatography mass spectrometry (LC MS MS) Model- LTQ XL**<br>**iSTEM id: 1961735** | Thermo Fisher Scientific | Prof. Prasanta Sanyal | Mr. Mahesh Ghosh (mahesh.jta@iiserkol.ac.in) |
| **4** | **Quadrupole Inductively Coupled Plasma Spectrometer (ICP-MS) Model: iCAPRQplus**<br>**iSTEM id: 1961589** | Thermo Fisher Scientific | Prof. Sanjay Kumar Mandal | Dr. Santosh Ch Das |
| **6** | **ICP OES** | iCAP 7400 Plus Series | Prof. Gopala K Darbha | Mr. Jay Karmakar (Ph.D. student) |
| **7** | **WDXRF(S8 TIGER)**<br>**iSTEM id: 1961590** | Bruker India Scientific Pvt Ltd(Axs Division) | Prof. Manoj K Jaiswal | Mr. Biswajit Giri giri.biswajit605@iiserkol.ac.in |
| **8** | **Xrfuse2 Electric**<br>**iSTEM id: 1961591** | XRF Scientific Ltd | Prof. Manoj K Jaiswal | Mr. Biswajit Giri giri.biswajit605@iiserkol.ac.in |

# Department of Earth Sciences

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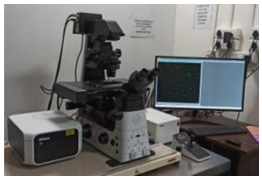
b) **Internal users**: Book instrument by following Department Booking Policy.
c) **External users**: For instrument booking and payment contact respective operators.
d) *Instrument details* and *charges* for every instrument are available in the following sections.

| Sl. No. | **Instrument Name** | **Machine make** | **Name of Faculty-in-charge** | **Operator's Name** |
|---|---|---|---|---|
| **9** | **GCMS (7890 A, 7000 B)**<br>**iSTEM id: 1941738** | Agilent | Prof. Prasanta Sanyal | Mr. Mahesh Ghosh (mahesh.jta@iiserkol.ac.in) |
| **10** | **GCMS (8890 A, 7010 B)1**<br>**iSTEM id: 1961594** | Agilent | Prof. Prasanta Sanyal | Mr. Mahesh Ghosh (mahesh.jta@iiserkol.ac.in) |
| **11** | **OPTIR** | mIRAGE-R | Prof. Gopala K Darbha | Mr. Jay Karmakar (Ph.D. student) |

# Confocal Microscopy (Ti2 Eclipse)

| **Made** | **Nikon, Japan** |
|---|---|
| Model: | Ti2 Eclipse with AXR module (CONFOCAL) |
| Specification:  | INVERTED MICROSCOPE - Ti2 Eclipse<br>Fluorescence lamp unit – LED<br>Motorised stage unit<br>Incubator setup for live imaging with CO2 and temperature control unit and humidifier chamber<br>Objectives – 4X,10X,20X,40X, 60X(oil), 100X(oil)<br>Laser lines – 405nm, 488 nm,560 nm, 640 nm<br>AXR Dual Scanner (Galvano Scanner and Resonant scanner)<br>Four channel detector unit - PMT+GaAsP<br>Software – NIS Elements -ER |
| Note: | This instrument is supported with UPS. |

| **Necessary information** | |
|---|---|
| Operator's Name: Ritabrata Ghosh<br>Operator's Mail id:<br>ritabrata.ghosh@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext no: 1460 | Location of the instrument<br>Room no: E-241<br>Building : Research complex |
| Faculty in Charge: Prof. Bidisha Sinha<br>Mail id of the Faculty in Charge: bidisha.sinha@iiserkol.ac.in | |

| **Rate Chart and Booking policy [Hourly basis]** | **Special Instructions** |
|---|---|
| Internal: Department policy<br>External (Academia): 1000 +18% GST<br>External (Industry): 2000 +18% GST<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail. | 1. Bookings are done based on experimental type and sample number.<br>2. User should bring prepared and mounted samples. IF screening for staining standardization for effective illumination is recommended. |

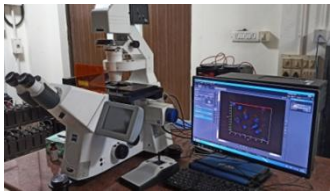
# Confocal Microscopy (CLSM 710)

| **Made** | **Carl Zeiss, Germany** |
|---|---|
| Model: | CLSM 710 (CONFOCAL) |
| Specification: | INVERTED MICROSCOPE - Axio observer z.2<br>Camera – Axiocam HRM<br>Fluorescence unit – Metal Halide Xcite model<br>Spectral PMT detector<br>Motorised stage unit<br>Incubator setup for live imaging with CO2 and temperature control unit and humidifier chamber<br>Objectives – 10X,20X,40X (oil), 63X(oil), 100X(oil)<br>Laser lines – 405nm,458 nm, 488 nm, 514 nm, 561 nm, 633 nm<br>Spectral PMT array detector<br>Software - Zen |
| Note: | This instrument is supported with UPS. |

| **Necessary information** | |
|---|---|
| Operator's Name: Ritabrata Ghosh<br>Operator's Mail id: ritabrata.ghosh@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext no: 1460 | <u>Location of the instrument</u><br>Room no: E-241<br>Building : Research complex |
| Faculty in Charge: Prof. Bidisha Sinha<br>Mail id of the Faculty in Charge: bidisha.sinha@iiserkol.ac.in | |

| **Rate Chart and Booking policy [Hourly basis]** | **Special Instructions** |
|---|---|
| Internal: Department policy<br>*External (Academia):* 1000 +18% GST<br>*External (Industry):* 2000 +18% GST<br><u>Internal booking</u>: Department policy<br><u>External booking</u>: Contact Operator(s) by mail | 1. Bookings are done based on experimental type and sample number.<br>2. User should bring prepared and mounted samples. IF screening of staining standardization for effective illumination is recommended. |

# Inverted Microscope with Apotome

| **Made** | **Carl Zeiss, Germany** |
|---|---|
| Model: | Structured Illumination Microscopy (Apotome) |
| Specification:  | INVERTED MICROSCOPE - Axio observer z.2<br>Camera – Axiocam MRM<br>Inverted microscope<br>Objectives -10X, 20X, 40X , 63X(oil), 100X (oil)<br>Motorised stage<br>Metal halide lamp- HXP model<br>Apotome module unit- Apotome 2<br>Software – Zen Blue |
| Note: | This instrument is supported with UPS. |

| **Necessary information** | |
|---|---|
| Operator's Name: Ritabrata Ghosh<br>Operator's Mail id:<br>ritabrata.ghosh@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext no: 1460 | <u>Location of the instrument</u><br>Room no: E-241<br>Building : Research complex |
| Faculty in Charge: Prof. Bidisha Sinha<br>Mail id of the Faculty in Charge: bidisha.sinha@iiserkol.ac.in | |

| **Rate Chart and Booking policy [Hourly basis]** | **Special Instructions** |
|---|---|
| Internal: Department policy<br>*External (Academia):* 500 +18% GST<br>*External (Industry):* 1000 +18% GST<br><u>Internal booking</u>: Department policy<br><u>External booking</u>: Contact Operator(s) by mail | 1. Bookings are done based on experimental type and sample number.<br>2. User should bring prepared and mounted samples. IF screening for staining standardization for effective illumination is recommended. |

# Epifluoroscence Microscope

| **Made** | **Olympus, Japan** |
|---|---|
| Model: | IX83 with motorized stage unit (Widefield fluorescence) |
| Specification: | INVERTED MICROSCOPE –IX83<br>SCIENTIFIC CMOS CAMERA-Monochrome- Orca 2 flash (Hamamatsu)<br>MOTORISED STAGE<br>Objectives – 4X, 10X, 20X, 40X,60X<br>FLUORESCENCENT LIGHT SOURCE – LED (COOL LED system)<br>Software – Cells Sens Professional<br>For BRIGHTFIELD, DIC IMAGING and WIDEFIELD FLUORESCENCE MICROSCOPY |
| Note: | This instrument is supported with UPS. |

| **Necessary information** | |
|---|---|
| Operator's Name: Ritabrata Ghosh<br>Operator's Mail id: ritabrata.ghosh@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext no: 1460 | <u>Location of the instrument</u><br>Room no: E-241<br>Building : Research complex |
| Faculty in Charge: Prof. Bidisha Sinha<br>Mail id of the Faculty in Charge: bidisha.sinha@iiserkol.ac.in | |

| **Rate Chart and Booking policy [Hourly basis]** | **Special Instructions** |
|---|---|
| Internal: Department policy<br>*External (Academia):* 500 +18% GST<br>*External (Industry):* 1000 +18% GST<br><u>Internal booking</u>: Department policy<br><u>External booking</u>: Contact Operator(s) by mail | 1. Bookings are done based on experimental type and sample number.<br>2. User should bring prepared and mounted samples. |

# Spinning Disc Confocal Microscope

| | |
|---|---|
| **Made** | **JAPAN** |
| Model: | Yokogawa CSU-W1 SoRA |
| Specification: | The yokogawa CSU-W1 SoRA is a camera based (ORCA-Fusion C14440) spinning disk confocal microscope designed for high speed imaging . It is equipped with three fixed excitation laser at wavelength of 405nm, 488 nm, 561 nm. The system supports a variety of imaging modalities,including multichannel acquisition, multiposition imaging, z-stack imaging and time-lapse imaging for dynamic live-cell studies. The system features a fully motorized stage that enables seamless stitching of samples. Its spinning disk technology ensures rapid image acquisitions with minimal photobleaching and phototoxicity, making it ideal for both fixed and live cell imaging experiments. |
| Note: | This system includes TOKAI HIT Stage top incubator for Co2 and temperature control |

| **Necessary information** | |
|---|---|
| Operator's Name: Shreya Ghosh<br>Operator's Mail id: shreya08@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext no: 2181 | Location of the instrument<br>Room no: N-214<br>Building : Teaching and Research complex |
| Faculty in Charge: Prof. Bidisha Sinha<br>Mail id of the Faculty in Charge: bidisha.sinha@iiserkol.ac.in | |

| **Rate Chart and Booking policy [Three hours]** | **Special Instructions** |
|---|---|
| Internal: Department policy<br>*External (Academia):* 1200 +18% GST<br>*External (Industry):* 2100+18% GST<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail | 1. The imaging requires temperature control, please inform one day before the imaging. |

# STED MICROSCOPE

| **Made** | |
|---|---|
| Model: | Abberior Facility Line |
| Specification: | The Abberior STED Microscope is a cutting -edge super-resolution imaging system designed to support a wide range of advanced imaging application in research . The Facility line STED microscope from Abberior Instruments has four excitation laser (405,488,561,640 nm) as well as one pulsed STED laser (775 nm) complements two excitation lasers (561 ,640 nm).It is capable of performing multi-channel imaging (simultaneously two channel), Z-stack acquisition,time-lapse imaging, 3D -STED imaging .The system incorporates Abberior's patented Adaptive illumination methods. In addition to high -resolution imaging , the microscope is equipped with FLIM capabilities. For detection sensitivity, it features two ultra-sensitive single photon counting APD detectors. . |
| Note: | This system includes Okolab Stage top incubator for CO2 and temperature control |

| **Necessary information** | |
|---|---|
| Operator's Name: Shreya Ghosh<br>Operator's Mail id:<br>shreya08@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext no: 2181 | Location of the instrument<br>Room no: N-214 TRC Building<br>Teaching and Research complex |
| Faculty in Charge: Prof. Bidisha Sinha<br>Mail id of the Faculty in Charge: bidisha.sinha@iiserkol.ac.in | |

| **Rate Chart and Booking policy [Per Three hours]** |
|---|
| Internal: Department policy<br>*External (Academia):* 1200 +18% GST<br>*External (Industry):* 2600 +18% GST<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail |

# Flowcytometer (Analyser)

| | |
|---|---|
| **Made** | Becton Dickinson (BD) |
| Model: | BD LSR Fortessa |
| Specification: | The BD LSRFortessa is a 3 laser (488 nm, 561 nm and 633 nm) analyzer system and at a time can detect up to 10 parameters: Forward scatter, side scatter and 8 colors.<br><br>This flow cytometer is used to perform several applications like immunophenotyping, cell cycle analysis, ploidy determination, apoptosis, intracellular antigen measurement, study of mitochondria by JC-1 staining, cell proliferation, micro particle analysis, drug delivery etc. Data are analyzed by FACSDiva software. |
| Note: | This facility is available for IISER Kolkata internal as well as of external users. |

| **Necessary information** | |
|---|---|
| Operator's Name: Tamal Ghosh<br>Operator's Mail id: tamal.ghosh@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext no:1542 | Location of the instrument<br>Room no: N-202<br>Building : Research complex |
| Faculty in Charge: Prof. Malancha Ta<br>Mail id of the Faculty in Charge: malancha.ta@iiserkol.ac.in | |

| **Rate Chart and Booking policy** | **Special Instructions** |
|---|---|
| Internal: Department policy<br>*External (Academia):* 150 +18% GST per tube<br>*External (Industry):* 250 +18% GST per tube<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail | 1. Sheath fluid and FACS tubes are not provided for internal but for external samples these are provided from flow cytometry facility.<br>2. Samples should be as single cell suspension. |

# Flowcytometer (Cell sorter)

| | |
|---|---|
| **Made** | Becton Dickinson (BD) |
| Model: | BD FACSAria III |
| Specification: | FACSAria III is a 5 (355 nm, 405, 488 nm, 561 nm and 633 nm) laser analyzer cum cell sorter system and at a time can detect maximum 18 parameters: Forward scatter, side scatter and 16 colors and capable of doing 2 way as well as 4 way sorting.<br><br>This flow cytometer is used to perform several applications like immunophenotyping, cell cycle analysis, ploidy determination, apoptosis, intracellular antigen measurement, study of mitochondria by JC-1 staining, cell proliferation, micro particle analysis, drug delivery etc. Data are analyzed by FACSDiva software. |
| Note: | This facility is available for IISER Kolkata internal as well as of external users. |

| **Necessary information** | |
|---|---|
| Operator's Name: Tamal Ghosh<br>Operator's Mail id:<br>tamal.ghosh@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext no:1542 | Location of the instrument<br>Room no: N-202<br>Building : Research complex |
| Faculty in Charge: Prof. Malancha Ta<br>Mail id of the Faculty in Charge: malancha.ta@iiserkol.ac.in | |

| **Rate Chart and Booking policy [Per hour]** | **Special Instructions** |
|---|---|
| Internal: Department policy<br>*External (Academia):* 250 +18% GST per tube<br>*External (Industry):* 350 +18% GST per tube<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail | 1. Sheath fluid and FACS tubes are not provided for internal but for external samples these are provided from flow cytometry facility.<br>2. Samples should be as single cell suspension. |

# Automated Capillary DNA Sequencer

| **Made** | |
|---|---|
| Model: | SeqStudio 8 Flex Genetic Analyzer |
| Specification: | The Applied Biosystems SeqStudio 8 Flex Genetic Analyzer are fluorescence-based automated capillary DNA sequencer with 8 capillaries.<br>SeqStudio 8 Flex Genetic Analyzer offers design improvements and technological advances to the capillary electrophoresis (CE) workflow. It delivers gold-standard Sanger sequencing and fragment analysis data quality with increased flexibility, easier operation, and cloud connectivity to enable researchers to manage their workloads and work/life balance effectively. Designed for ultimate ease-of-use, this mid-throughput system offers high quality, excellent reliability, and an optimal user experience for researchers who want to work smarter in the lab. |
| Note: | NA |

| **Necessary information** | |
|---|---|
| Operator's Name: Mr. Debabrata Sutradhar<br>Facility's Mail id: sequencing@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext no:2175 | <u>Location of the instrument</u><br>Room no: N-206 (2nd Floor)<br>Building : Research Complex |
| Faculty in Charge: Prof. Amirul I Mallick<br>Mail id of the Faculty in Charge: amallick@iiserkol.ac.in | |

| **Rate Chart and Booking policy [per reaction]** |
|---|
| Internal: Department policy<br>*External (Academia):* 500 +18% GST<br>*External (Industry):* 650 +18% GST<br><u>Internal booking</u>: Department policy<br><u>External booking</u>: Contact Operator(s) by mail |

# Metabolic Flux analyser system

| | |
|---|---|
| **Made** | USA |
| Model: | Sea Horse XFe24 Analyser |
| Specification: | A metabolic flux analyzer is a tool or technique, specifically metabolic flux analysis (MFA), that quantifies the rates of metabolic reactions within a cell or organism. It helps understand how metabolic pathways operate and respond to changes in the environment or genetic modifications. MFA integrates experimental data, like substrate uptake and product secretion rates, with computational models to determine intracellular fluxes. |
| Note: | |

| **Necessary information** | |
|---|---|
| Operator's Name: Soumik Sao<br>Operator's Mail id: analyticalfacility.dbs@iiserkol.ac.in<br>LAN no: XXX | Location of the instrument<br>Room no: W-228, TRC<br>Building : Teaching and Research complex |
| Faculty in Charge: Dr. Sumit Sen Santra<br>Mail id of the Faculty in Charge: sumit.santara@iiserkol.ac.in | |

| **Rate Chart and Booking policy (Per hour)** | **Special Instructions** |
|---|---|
| Internal: Department policy<br>*External (Academia):* NA<br>*External (Industry):* NA<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail | 1.Sample should be filtered with 0.2-micron filter.<br>2. Only available for bio molecules in aqueous mobile phase. |

# HPLC system (SEC MALS)

| | |
|---|---|
| **Made** | DAWN 8 |
| Model: | WATERS |
| Specification: | SEC-MALS (Size Exclusion Chromatography – MultiAngle Light Scattering and DLS are techniques used in light scattering for characterizing molecules in solution. SEC-MALS, or Size Exclusion Chromatography coupled with Multi-Angle Light Scattering, is used to determine the absolute molar mass and size of molecules as they elute from a chromatography column. Dynamic Light Scattering (DLS) measures the fluctuations in scattered light to determine the hydrodynamic radius of particles in solution. |
| Note: | NA |

| **Necessary information** | |
|---|---|
| Operator's Name: Soumik Sao<br>Operator's Mail id: analyticalfacility.dbs@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext no: 2208 | Location of the instrument<br>Room no: W-228<br>Building : Teaching and Research complex |
| Faculty in Charge: Prof. Supratim Dutta<br>Mail id of the Faculty in Charge: supratim@iiserkol.ac.in | |

| **Rate Chart and Booking policy (Per sample)** | **Special Instructions** |
|---|---|
| Internal: Department policy<br>*External (Academia):* 2500 +18% GST<br>*External (Industry):* 4000 +18% GST<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail | 1.Sample should be filtered with 0.2 micron filter.<br>2. Only available for bio molecules in aqueous mobile phase. |

# Isothermal Calorimeter (ITC)

| | |
|---|---|
| **Made** | PEAQ-ITC (Malvern) |
| Model: | MICROCAL PEAQ-ITC |
| Specification: | This facility enables researchers to study characterization of protein-protein and protein-ligand, DNA-protein binding, drug heat validation and enzyme activity. One ITC experiment gives all the relevant thermodynamic properties including the binding affinity ($K_D$),reaction stoichiometry (n),changes in enthalpy (ΔH), entropy (ΔS) and Gibb's free energy (ΔG). |
| Note: | This facility is available for IISER Kolkata internal as well as of external users. |

| **Necessary information** | |
|---|---|
| Operator's Name: Tamal Ghosh<br>Operator's Mail id: tamal.ghosh@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext no: 2202 | Location of the instrument<br>Room no: N-212<br>Building : Teaching and Research complex |
| Faculty in Charge: Dr. Babu Sudhamalla<br>Mail id of the Faculty in Charge: s.babu@iiserkol.ac.in | |

| **Rate Chart and Booking policy (Per hour)** | **Special Instructions** |
|---|---|
| Internal: Department policy<br>*External (Academia):* 1000 INR+ GST (18%)<br>*External (Industry):* 2000 INR+ GST (18%)<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail | 1.Samples should be aqueous soluble, non sticky and colorless.<br>2. 80 ml methanol, 4 PCR tube needed for 4 experiments in a full day (approx). |

# Real-time biomolecular interaction analysis

| **Made** | **BiacoreT200 (GE)** |
|---|---|
| Model: | BiacoreT200 |
| Specification: | Real-time bimolecular interaction analysis refers to techniques used to study the binding and dissociation of two molecules in real-time, without needing to label them. This allows researchers to observe the kinetics and affinity of interactions as they occur. These techniques are crucial for understanding various biological processes and drug discovery.<br>Several technologies enable real-time bimolecular interaction analysis:<br>1. Surface Plasmon Resonance (SPR):<br>SPR measures changes in refractive index near a sensor surface when molecules bind, providing information about binding kinetics, affinity, and specificity.<br>It's label-free, meaning no fluorescent or radioactive tags are needed, which can alter the behavior of the molecules being studied.<br>BIAcore systems, based on SPR, are widely used for kinetic analysis of biomolecular interactions. |
| Note: | NA |

| **Necessary information** | |
|---|---|
| Operator's Name: Soumik Sao<br>Operator's Mail id: analyticalfacility.dbs@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext no: 2202 | <u>Location of the instrument</u><br>Room no: N-212<br>Building : Teaching and Research complex |
| Faculty in Charge: Dr. Rahul Das<br>Mail id of the Faculty in Charge: rahul.das@iiserkol.ac.in | |

| **Rate Chart and Booking policy (Per sample)** | **Special Instructions** |
|---|---|
| Internal: Department policy<br>*External (Academia):* 4500 +18% GST<br>*External (Industry):* 5500 +18% GST<br><u>Internal booking</u>: Department policy<br><u>External booking</u>: Contact Operator(s) by mail | User should bring Chip(s) (e. g CM5, Ni NTA). Consumables may be supplied upon payment. |

# Multimode Plate Reader

| | |
|---|---|
| **Made** | BioTek |
| Model: | Citation 5 |
| Specification: | BioTek Cytation 5 combines automated microscopy and conventional microplate detection in a configurable, upgradable platform. The microscopy module offers up to 60x magnification in fluorescence, brightfield, high contrast brightfield, color brightfield, and phase contrast to address many applications and workflows. The multimode detection modules include filter- and monochromator-based fluorescence detection, luminescence, and UV-Vis absorbance detection. Gen5 software provides complete control over all imaging and data capture, plus powerful image and data analysis |
| Note: | This facility is supported with $CO_2$ and $O_2$ cylinder with digital control unit |

| **Necessary information** | |
|---|---|
| Operator's Name: Soumik Sao<br>Operator's Mail id: analyticalfacility.dbs@iiserkol.ac.in<br>LAN no: 2202 | Location of the instrument<br>Room no: N-212<br>Building : Teaching and Research complex |
| Faculty in Charge: Dr. R. Das<br>Mail id of the Faculty in Charge: rahul.das@iiserkol.ac.in | |

| **Rate Chart and Booking policy (Per hour)** | **Special Instructions** |
|---|---|
| Internal: Department policy<br>*External (Academia):* 500 +18% GST<br>*External (Industry):* 1100 +18% GST<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail | NA |

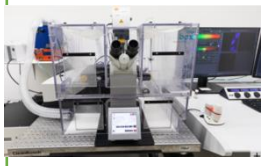
# Circular Dichroism Spectrophotometer

| **Made** | **Jasco JAPAN** |
|---|---|
| Model: | J- 1500-450 |
| Specification: | The J-1500 Circular Dichroism Spectrophotometer allows for maximum flexibility to upgrade your CD system with different measurement techniques. While the standard measurement modes are CD, LD, and absorbance, up to four simultaneous modes can be measured when combined with a wide range of sampling accessories.<br>These accessories can measure a variety of samples. Temperature control systems can be coupled with multi-position cells to run thermal melts, providing researchers with CD and thermodynamic data sets for conformational and folding studies.<br>The wavelength range has also been significantly extended, allowing measurements to be obtained in both the vacuum-UV and NIR spectral regions using the standard PMT detector (163 – 950 nm) and an optional InGaAs detector (up to 1600 nm). |
| Note: | This instrument is supported with $N_2$ generator. |

| **Necessary information** | |
|---|---|
| Operator's Name: Soumik Sao<br>Operator's Mail id: analyticalfacility.dbs@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext no: 2202 | Location of the instrument<br>Room no: N-212<br>Building : Teaching and Research complex |
| Faculty in Charge:Dr. Babu Sudhamalla<br>Mail id of the Faculty in Charge: s.babu@iiserkol.ac.in | |

| **Rate Chart and Booking policy [Hourly basis]** | **Special Instructions** |
|---|---|
| *Internal:* Department policy<br>*External (Academia):* 750 +18% GST<br>*External (Industry):* 2000 +18% GST<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail | 1. User should bring cuvette.<br>2. Only for biological samples. |

# Microscopy

| **Made** | |
|---|---|
| Model: | Leica – SP8 |
| Specification:  | The Leica SP8 is a versatile confocal microscope platform, known for its high-speed, multi-spectral, and super-resolution capabilities, making it suitable for both fixed and live cell imaging. It utilizes laser scanning technology to acquire optical sections, enabling the generation of high-resolution 3D images. The SP8 is equipped with various features like a resonant scanner for rapid imaging, highly sensitive detectors for low-light detection, and tunable excitation and detection for precise fluorophore selection |
| Note: | . |

| **Necessary information** | |
|---|---|
| Operator's Name: XXXX<br>Operator's Mail id: XXXXX@iiserkol.ac.in<br>LAN no: xxxx | Location of the instrument<br>Room no: N 216<br>Building : Teaching and Research complex |
| Faculty in Charge: Dr. Arnab Gupta<br>Mail id of the Faculty in Charge: arnab.gupta@iiserkol.ac.in<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail | |

| **Rate Chart and Booking policy [Hourly basis]** | **Special Instructions** |
|---|---|
| *Internal*: Department policy<br>*External (Academia):* 1000 + 18% GST<br>*External (Industry):* 2000 +18 % GST<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail | NA |

# Fluorescence Lifetime Imaging Microscope (FLIM)

| **Made** | **Becker & Hickl** |
|---|---|
| Model: | DCS-120 |
| Specification: | The DCS-120 confocal FLIM system from Becker & Hickl with an inverted microscope of Zeiss which uses excitation by ps diode lasers (488 nm and 405 nm), fast scanning by galvanometer mirrors, confocal detection, and FLIM by bh's multidimensional TCSPC technique. It records fluorescence lifetime images with high spatial resolution and sensitivity. Fluorescence lifetimes can be detected down to 100 ps. The pixel format can be increased to 2048 x 2048.<br>DCS-120 functions include recording of FLIM, time-series FLIM, Z-Stack FLIM, and FCS recording. Applications focus on metabolic imaging, i.e. the use of lifetime changes by interactions of fluorophores with their molecular environment. Data analysis is performed by BH's new SPC Image NG FLIM analysis software. 2D time-domain histograms, and automatic modelling of the system IRF. Repeated recalibration by recording the actual IRF is thus unnecessary. |

| **Necessary info** | |
|---|---|
| Operator's Name: Trained students<br>Operator's Mail id:<br>mm23rs094@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext no: 1268 | <u>Location of the instrument</u><br>Room no: E-350<br>Building : Research Complex |
| Faculty in Charge: Prof. Pradipta Purkayastha<br>Mail id of the Faculty in Charge: ppurkayastha@iiserkol.ac.in | |

| **Rate Chart [Hourly basis]** | **Special Instructions** |
|---|---|
| Internal: Department policy<br>External (Academia): 500 +18% GST<br>External (Industry): 2000 +18% GST | 1. User should consult the student-in-charge or the FIC before sample preparation.<br>2. Urgency of the experiment will be decided by the FIC. |

# Thermogravimetric analysis (TGA) & Differential Scanning Calorimetry (DSC)

| **Made** | **Perkin Elmer** |
|---|---|
| Model: | |
| Specification: | Simultaneous Thermal Analysis combines Differential Scanning Calorimetry (DSC) and Thermogravimetry (TGA). The TGA/DSC 3+ is an advanced thermogravimetric analyzer with a high-temperature furnace, specifically designed to analyze the thermal properties of a wide range of materials. It provides valuable insights into material behavior by measuring weight loss and thermal transitions, making it ideal for applications in material development, pharmaceuticals, and polymer research. This instrument is essential for studying decomposition temperatures, moisture content, oxidation stability, and phase transitions, supporting innovation and optimization of materials across various industries and research fields. |

| **Necessary info** | |
|---|---|
| Operator's Name: Uday Bhanu Sen<br>Operator's Mail id:<br>uday.sen@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext no:1516 | <u>Location of the instrument</u><br>Room no: N-301<br>Building : Research complex |
| Faculty in Charge: Dr. Ratheesh K Vijayaraghavan<br>Mail id of the Faculty in Charge: ratheesh@iiserkol.ac.in | |

| **Rate Chart [Per Sample]** | **Special Instructions** |
|---|---|
| Internal: Department policy<br>External (Academia): 500 Rs +18% GST<br>External (Industry): 800 Rs +18% GST | 1. User should consult the student-in-charge or the FIC before sample preparation.<br>2. Urgency of the experiment will be decided by the FIC. |

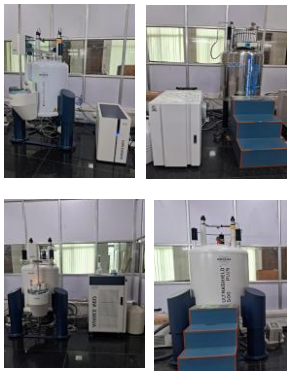
# Transmission Electron Microscopy (TEM)

| **Made** | **JEOL Ltd. JAPAN** |
|---|---|
| Model: | **JEM-2100F (FEG) & JEM-2100PLUS (LaB6)** |
| Specification:<br><br>**JEM-2100F**:<br> <br>**JEM-2100PLUS**:<br> | Transmission electron microscopy (TEM) is a technique that uses a beam of electrons to create highly magnified images of specimens, particularly those that are very thin or at the nanoscale. It is used in fields like materials science, biology, and nanotechnology to visualize and analyze the internal structure of materials and biological samples at a resolution far beyond what's possible with light microscopy.<br>**JEM-2100F** is recommended exclusively for solid state materials to avoid contamination in the column, FEG machine will only operate at 200 kV since low accelerating voltage affects the lens stabilization. Also, we get Morphology image, HR-TEM, STEM, EDS, MAPPING, SAED.<br>**JEM-2100Plus** can be used for all sample types including soft materials such as gels, polymers, CRYO Samples and biological samples. LaB6 machine can be used at different voltages of 80, 100, 120, 160 and 200 kV for all samples. |

| **Necessary info** | |
|---|---|
| Operator's Name: Ankana Kanji<br>Operator's Mail id: tem@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext.: 1463 | Location of the instrument<br>Building : Teaching and Research complex<br>Room no: W- 025, Ground floor |
| Faculty in Charge:<br><br>Mail id of the Faculty in Charge: | Prof. Venkataramanan Mahalingam<br>Dr. Dibyendu Das<br>mvenkat@iiserkol.ac.in<br>dasd@iiserkol.ac.in |

| **Rate Chart [Slot basis : 1 hr. 15min]** | **Special Instructions** |
|---|---|
| Internal: Department policy<br>External (Academia): 8000 Rs<br>External (Industry): 15000 Rs | 1. For Magnetic compound sample must need a blank grid for imaging.<br>2. Sample must be properly dry (moisture free). |

# Nuclear Magnetic Resonance (NMR)

| **Made** | **Bruker / Rigaku** |
|---|---|
| Model: | Avance NEO 400 MHZ / JNM ECZL 400S 400 MHz / Avance NEO 500 MHz / Avance III 500 MHz |
| Specification:  | NMR spectroscopy, commonly known as Magnetic Resonance Spectroscopy (MRS), is a strong analytical method used to analyze the local magnetic fields around atomic nuclei. It is based on the absorption of electromagnetic radiation by atom nuclei in the radiofrequency area, which generally ranges from 4 to 900 MHz.<br>Over the last several decades, NMR spectroscopy has emerged as a major tool for identifying the structure of organic molecules. It is uncommon among spectroscopic approaches in that it is normally required to analyze and interpret the full spectrum |

| **Necessary info** | |
|---|---|
| Operator's Name: Arnab Chattopadhyay, Parves Sajjad Mondal<br>Operator's Mail id:<br>parves.sajjad@iiserkol.ac.in<br>arnab_cha2009@iiserkol.ac.in<br>LAN no: 1172 | <u>Location of the instrument</u><br>Room no: S-035 / G-11<br>Building : Research complex |
| Faculty in Charge: Prof. Balaram Mukhopadhyay<br>Mail id of the Faculty in Charge: mbalaram@iiserkol.ac.in | |

| **Rate Chart [Hourly basis]** | **Special Instructions** |
|---|---|
| Internal: Department policy<br>External (Academia):<br>Rs. 1000.00 for first hour and Rs. 500.00 onwards hours +18% GST<br>External (Industry):<br>Rs. 2000.00 for first hour and Rs. 1000.00 onwards hours+18% GST | 1. User should consult the student-in-charge or the FIC before sample preparation.<br>2. Urgency of the experiment will be decided by the FIC. |

# Electron Paramagnetic Resonance (EPR)

| **Made** | **Perkin Elmer** |
|---|---|
| Model: | |
| Specification: | **Electron paramagnetic resonance (EPR) spectroscopy**, also known as electron spin resonance (ESR), is a technique used to study materials with unpaired electrons. It involves the absorption of microwave radiation by paramagnetic substances, which induces transitions between magnetic energy levels of electrons with unpaired spins. EPR is significant in various fields, including chemistry and biology, as it helps in understanding processes such as photosynthesis, oxidation, and catalysis. This method provides detailed information on the structure and bonding of paramagnetic species, making it a valuable tool in scientific research. |

| **Necessary info** | |
|---|---|
| Operator's Name: Uday Bhanu Sen<br>Operator's Mail id:<br>uday.sen@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext.: | Location of the instrument<br>Room no: M-047<br>Building : Research complex |
| Faculty in Charge: Dr. Parna Gupta<br>Mail id of the Faculty in Charge: parna@iiserkol.ac.in | |

| **Rate Chart [Hourly basis]** | **Special Instructions** |
|---|---|
| Internal: Department policy<br>External (Academia) + External (Industry):<br>Room Temp: 300 Rs +18% GST<br>Low Temperature: 500 Rs +18% GST<br>For Undergraduate College: Room Temp: 100 Rs +18% GST, Low Temperature: 150 Rs +18% GST | 1. User should consult the student-in-charge or the FIC before sample preparation.<br>2. Urgency of the experiment will be decided by the FIC. |

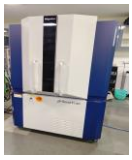
# FLS 1000

| **Made** | |
|---|---|
| Model: | EDINBURGH INSTRUMENTS |
| Specification: | Ultimate Sensitivity: Highest sensitivity on the market, with a signal-to-noise ratio of 35,000:1, ensures that the weakest photoluminescence signals can be detected<br>Modular Design: Customize the configuration to suit your specific research requirements; select from different light sources, detectors, and sample holders to create the optimal configuration<br>Upgradability: Upgrade your system with additional modules as new research needs arise, protecting the investment and keeping the equipment at the cutting edge of your research<br>NIR & MIR: Characterize NIR and MIR emitters with a wide range of infrared detector options with sensitivity out to 5500 nm<br>Automation: Equipped with advanced Fluoracle® software for comprehensive control of experiments, data acquisition, analysis, and time-saving automation features<br>Micro-Spectroscopy: Transform the FLS1000 into a powerful photoluminescence microscope with the MicroPL Upgrade; enabling high-resolution mapping of microscopic sample. |

| **Necessary info** | |
|---|---|
| Operator's Name: Tania Roy<br>Operator's Mail id: tania.roy@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext.: | <u>Location of the instrument</u><br>Room no: N 301<br>Building : Research complex |
| Faculty in Charge: Dr. Ratheesh K Vijayaraghavan<br>Mail id of the Faculty in Charge: ratheesh@iiserkol.ac.in | |

| **Rate Chart [2 hr/ Slot]** | **Special Instructions** |
|---|---|
| Internal: Department policy<br>External (Academia)+ External (Industry): 1000 Rs + 18% GST | 1. User should consult the student-in-charge or the FIC before sample preparation.<br>2. Urgency of the experiment will be decided by the FIC. |

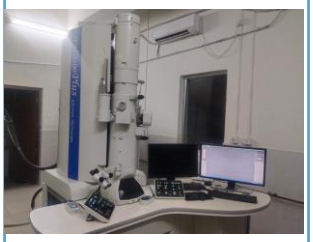
# X-Ray Diffraction Spectrometer (XRD)

| **Made** | **Rigaku / Bruker** |
|---|---|
| Model: | Smart Lab SE / Miniflex-600 / D8 Quest / XtaLab Synergy-I |
| Specification:  | An **X-ray diffraction spectrometer** is used for analyzing the atomic structure of materials. It works by irradiating a material with X-rays and measuring the intensities and scattering angles of the X-rays that leave the material. The technique is nondestructive and widely used in materials science for phase identification and quantification. |

| **Necessary info** | |
|---|---|
| Operator's Name: Piyali Bose, Dr. K Srikanth<br>Operator's Mail id: srikanth@iiserkol.ac.in, piyali.bose@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext.:1448 | Location of the instrument<br>Room no: S-034<br>Building : Research complex |
| Faculty in Charge: Prof. Rahul Banerjee<br>Mail id of the Faculty in Charge: r.banerjee@iiserkol.ac.in | |

| **Rate Chart [Per Sample]** | **Special Instructions** |
|---|---|
| Internal: Department policy<br>External (Academia): SCXRD (5000 Rs +18% GST), PXRD (250 Rs +18% GST)<br>External (Industry): SCXRD (15000 Rs +18% GST), PXRD (500 Rs +18% GST) | 1. User should consult the student-in-charge or the FIC before sample preparation.<br>2. Urgency of the experiment will be decided by the FIC. |

# Field Emission Scanning Electron Microscope (FESEM)

| | |
|---|---|
| **Made** | **JEOL / CARL ZEISS** |
| Model: | JSM-IT800 / SUPRA 55 VP |
| Specification:  | The FESEM is most commonly used for characterization technique for surface topographic studies of materials. With the FESEM it is possible to obtain a secondary electron image of organic and inorganic materials which allow topographic and morphological studies, by scanning an electron probe across the surface and monitoring emitted secondary electrons. Compositional analysis of a material may also be obtained by monitoring X-rays produced by the electron-specimen interaction. This detailed map of elemental distribution can be produced. |

| **Necessary info** | |
|---|---|
| Operator's Name: Kashinath Sahu<br>Operator's Mail id: sahukashi@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext.: 1493 | Location of the instrument<br>Room no: N-008<br>Building : Research complex |
| Faculty in Charge: Prof. Rahul Banerjee<br>Mail id of the Faculty in Charge: r.banerjee@iiserkol.ac.in | |

| **Rate Chart [Per 2hrs slot]** | **Special Instructions** |
|---|---|
| External Academia<br>FESEM: 2500 Rs + 18% GST<br>FESEM +EDS: 4000 Rs + 18% GST<br>External (Industry)<br>FESEM: 5000 Rs + 18% GST<br>FESEM +EDS: 8000 Rs + 18% GST | 1. Slot duration 2 Hrs, Including sample preparation, coating, loading.<br>2. Urgency of the experiment will be decided by the FIC. |

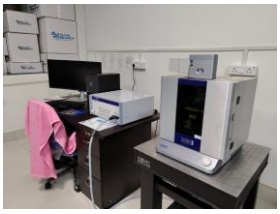
# Elemental Analyzer (CHN)

| **Made** | **Perkin Elmer** |
|---|---|
| Model: | 2400 Series II |
| Specification: | CHNS elemental analysers provide a means for the rapid determination of carbon, hydrogen, nitrogen and sulphur in organic matrices and other types of materials. They are capable of handling a wide variety of sample types, including solids, liquids, volatile and viscous samples, in the fields of pharmaceuticals, polymers, chemicals, environment, food and energy.<br>The analysers are often constructed in modular form such that they can be set up in a number of different configurations to determine, for example, CHN, CHNS, CNS or N depending on the application. This adaptability allows not only flexibility of operation but also the use of a wide range of sample weights from a fraction of a milligram to several grams (macro-systems.) |

| **Necessary info** | |
|---|---|
| Operator's Name: Tania Roy<br>Operator's Mail id:<br>tania.roy@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext.:1517 | <u>Location of the instrument</u><br>Room no: E-339<br>Building : Research complex |
| Faculty in Charge: Dr. Parna Gupta<br>Mail id of the Faculty in Charge: parna@iiserkol.ac.in | |

| **Rate Chart [Per Sample]** | **Special Instructions** |
|---|---|
| Internal: Department policy<br>External (Academia) + External (Industry): 330 Rs + 18 % GST | 1. User should consult the student-in-charge or the FIC before sample preparation.<br>2. Urgency of the experiment will be decided by the FIC. |

# Table top Atomic Force Microscopy (AFM)

| **Made** | **Oxford Instruments, Asylum Research Inc.** |
|---|---|
| Model: | MFP 3D Origin / Cypher |
| Specification:  | The atomic force **microscope** (AFM) is a type of scanning probe microscope whose primary roles include measuring properties such as magnetism, height, friction. The resolution is measured in a nanometer, which is much more accurate and effective than the optical diffraction limit. It uses a probe for measuring and collection of data involves touching the surface that has the probe. An image is formed when the scanning probe microscope raster-scans the probe over a section of the sample, measuring its local properties concurrently. They also have piezoelectric elements, which are electric charges that accumulate in selected solid materials like DNA, biological proteins, crystal, etc., to enable tiny accurate and precise movement during scanning upon an electric command. |

| **Necessary info** | |
|---|---|
| Operator's Name: Soumen Mondal<br>Operator's Mail id: afm@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext.2167 | <u>Location of the instrument</u><br>Room no: W-024, Ground floor<br>Building : Teaching & Research complex |
| Faculty in Charge: Prof. Rahul Banerjee, Prof. Ratheesh. K. Vijayaraghavan, Prof. Dibyendu Das<br>Mail id of the Faculty in Charge: r.banerjee@iiserkol.ac.in, ratheesh@iiserkol.ac.in, dasd@iiserkol.ac.in | |

| **Rate Chart [Sample Basis]** | **Special Instructions** |
|---|---|
| Internal: Department policy<br>**Imaging:** External (Academia): 1500 Rs +18% GST, External (Industry): 4000 Rs +18%. **Force Spectroscopy:** External (Academia): 2000 Rs +18% GST, External (Industry): 8000 Rs +18% . **Conducting Mode:** External (Academia): 3000 Rs +18% GST, External (Industry): 10000 Rs +18% | 1. User should consult the student-in-charge or the FIC before sample preparation.<br>2. Urgency of the experiment will be decided by the FIC. |

# X-ray Photoelectron Spectroscopy (XPS)

| **Made** | **Physical Electronics** |
|---|---|
| Model: | ULVAC-PHI |
| Specification: | **X-ray photoelectron spectroscopy** is a surface-sensitive analytical technique that involves bombarding a material's surface with X-rays and measuring the kinetic energy of the released electrons. The surface sensitivity and capacity to reveal chemical state information from the elements in the sample are two significant properties of this approach that make it powerful as an analytical tool. X-ray Photoelectron Spectroscopy (XPS), also known as Electron Spectroscopy for Chemical Analysis (ESCA), is a technique used to assess the quantitative atomic composition and chemistry of a substance. When a sample is exposed to monochromatic X-rays, photoelectrons with energy characteristic of the elements inside the sampling volume are emitted |

| **Necessary info** | |
|---|---|
| Operator's Name: Mrinal Kanti Garai<br>Operator's Mail id: xps@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext.:2168 | Location of the instrument<br>Room no: W-024<br>Building : Teaching & Research complex |
| Faculty in Charge: Prof. Sayan Bhattacharyya & Prof. Sayam Sengupta<br>Mail id of the Faculty in Charge: sayanb@iiserkol.ac.in, sayam.sengupta@iiserkol.ac.in | |

| **Rate Chart** |
|---|
| **Internal:** Department policy<br>**External:** Booking Slot: (a) XPS Measurements 10am-1pm and 2pm-5pm (per slot 3hr). [Three or four samples per slot, depending on the number of elements present in each sample] :<br>**1) XPS (3 hr Slot):** Academic: 3500 +18% GST., Govt. funded labs: 5000+18% GST, External (Industry): 9000+18% GST. **2) Depth profiling (3 hr Slot):** Academic: 5500 + 18% GST Govt. funded labs: 7500 + 18% GST. Private/Industry: 11000 + 18% GST. **3) UPS (per sample):** *UPS Measurement 10am- 5pm (Full day) [Three or four samples, Ground and -10V Bias] :* Academic: 3000 + 18% GST Govt. funded labs: 4000 + 18% GST. Industry: 5000 + 18% GST.<br>**NOTE: a) User should consult the operator or the FiC before sample preparation.**<br>**b) Urgency of the experiment will be decided by the FiC.** |

# Rheometer

| **Made** | **Anton-Paar** |
|---|---|
| Model: | MCR 102e |
| Specification: | The MCR 102e Rheometer is a modular, high-precision rheological instrument designed to analyze the flow and deformation behavior of complex materials. Equipped with a robust air bearing and an EC synchronous motor, it offers exceptional torque sensitivity as low as 5 Nm for both rotational and oscillatory modes. With a wide temperature range from -160 °C to +1000 °C and pressure tolerance up to 1000 bar, the MCR 102e is suitable for a broad spectrum of rheological applications - from polymers and soft matter to high-performance materials. Its versatile accessory compatibility allows seamless expansion into areas like tribology, powder rheology, and DMA, making it a reliable choice for both routine and advanced research. |
| Note: | This instrument is supported with Compressor and Chiller. |

| **Necessary info** | |
|---|---|
| Operator's Name: Trained student users<br>Operator's Mail id: NA<br>LAN no: +91 33 61360000 Ext.:1516 | Location of the instrument<br>Room no: N 301<br>Building : Research complex |
| Faculty in Charge: Dr. Dibyendu Das<br>Mail id of the Faculty in Charge: dasd@iiserkol.ac.in | |

| **Rate Chart [Hourly basis]** | **Special Instructions** |
|---|---|
| Internal: NA<br>External (Academia): 1000 + 18% GST per sample<br>External (Industry): 8000 +18% GST per sample | NA |

# HRMS ESI

| **Made** | **Waters USA** |
|---|---|
| Model: | Xevo G2-XS QTOF |
| Specification: | High-resolution mass spectrometer combined with electrospray ionization(ESI) is a powerful analytical technique used to identify the complex molecules with exceptional precision & sensitivity.<br><br>HRMS provides high level of mass accuracy & resolution, enabling the differentiation of compounds with very close mass to charge ratio (m/z). It is capable of measuring masses within 0.001 atomic mass unit. |
| Note: | This instrument is supported with Ar cylinder. |

| **Necessary info** | |
|---|---|
| Operator's Name: Taniya Roy and Anshuman Singh<br>Operator's Mail id:hrmsfacility@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext.:2120 | <u>Location of the instrument</u><br>Room no: N-008<br>Building : Teaching and Research complex |
| Faculty in Charge: Dr. Biplab Maji<br>Mail id of the Faculty in Charge: bm@iiserkol.ac.in | |

| **Rate Chart [Hourly basis]** | **Special Instructions** |
|---|---|
| Internal: Department policy<br>HRMS only, External: (University/ Institutes): 750 +18% GST, National Lab/ R & Ds): 2500 +18% GST, IISER K Incubation 2500 + 18% GST, Industry: 5000.<br>HRMS and compound formula and Library search: External: (University/ Institutes): 1500 +18% GST, National Lab/ R & Ds): 3000 +18% GST, IISER K Incubation 3000 + 18% GST, Industry: 6000. | 1. User should bring 1mL syringe & 0.22 µm filter for each sample.<br>2. The sample should be purified through the column chromatography or crystallization. |

# Atomic Force Microscopy (AFM)

| **Made** | **Oxford Instruments** |
|---|---|
| Model: | MFP 3D Infinity |
| Specification: | The MFP 3D Infinity AFM supports a wide range of standard and specialized imaging modes, including tapping, contact and non-contact modes, conductive AFM, KPFM, nanoindentation. It offers the highest performance and versatility in its class, delivering high-resolution imaging in both air and fluid with a 120 µm XY range and 15 µm Z range (40 µm optional). Its modern flexured and sensored scanner design makes the AFM easier to use and improves measurement accuracy. Full suite of nanomechanical characterization modes are available for measuring viscoelastic properties (storage/elastic modulus and loss modulus). There is a wide range of nanoelectrical and electromechanical characterization modes present. It offers numerous environmental accessories for temperature control. |

| **Necessary info** | |
|---|---|
| Operator's Name: Soumen Mondal<br>Operator's Mail id: afm@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext.: 1470 | Location of the instrument<br>Room no: W-022<br>Building : Teaching and Research complex |
| Faculty in Charge: Dr. Dibyendu Das<br>Mail id of the Faculty in Charge: dasd@iiserkol.ac.in | |

| **Rate Chart [Hourly basis]** | **Special Instructions** |
|---|---|
| Internal: Department policy<br>External (Academia): Rs 3000 +18% GST per sample for academia (government organizations)<br>External (Industry): Rs 10000 +18% GST (industry or other non-government organizations) | User should bring prepared samples on appropriate solid supports like silicon wafer. |

# Liberty Blue peptide synthesizer

| | |
|---|---|
| **Made** | India |
| **Model:** | CEM LIBERTY BLUE |
| **Specification:** | The Liberty Blue™ automated microwave peptide synthesizer features a 4-minute cycle time, along with a 90% solvent reduction, based on High-Efficiency Solid-Phase Peptide Synthesis (HE-SPPS).<br>**Amino Acid Bottles**<br>○ 27 amino acid positions<br>○ Up to 120-mL capacity per position<br>○ Utilizes Flex-Add critical reagent delivery system<br>**Fiber Optic**<br>○ True internal fibre-optic temperature control<br>**Reaction Vessels**<br>○ Only two vessel sizes for 0.005 to 5.0 mmol synthetic scales<br>○ Replaceable reaction vessel frits reduce consumable costs<br>**Microwave Reactor**<br>○ Fastest and most controlled technology for peptide synthesis at elevated temperature<br>○ Technology for applying microwave energy to both the coupling and deprotection<br>**Solvent-resistant Composite Covers**<br>○ Maintains instrumentation finish and laboratory appearance |
| **Note:** | This instrument is supported with $N_2$ generator. |

| **Necessary info** | |
|---|---|
| Operator's Name: Janardan Chakraborty<br>Operator's Mail id: jc23rs031@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext.: 1472 | Location of the instrument<br>Room No: W-321<br>Building: Teaching and Research Complex (TRC) |
| Faculty in Charge: Dr. Dibyendu das<br>Mail id of the Faculty in Charge: dasd@iiserkol.ac.in | |

| Rate Chart [Sequence basis] | Special Instructions |
|---|---|
| Internal: Department policy<br>External (Academia): 250 +18% GST (per residue)<br>External (Industry): 750 +18% GST (per residue) | User should bring:<br>Consumables for the desired sequence. |

# Steady-State and Time-Resolved Spectrofluorometer

| | |
|---|---|
| **Made** | Edinburgh Instruments |
| Model: | FS5 v2 |
| Specification: | The FS5 Spectrofluorometer is a compact, high-performance benchtop system designed for the comprehensive characterization of fluorescent and phosphorescent samples. The FS5 v2 Spectrofluorometer is the latest evolution of the FS5, offering enhanced performance and expanded capabilities to meet the growing demands of modern photoluminescence spectroscopy. Photon counting detection comes with a signal-to-noise ratio of 12,000:1. It measures both absorption and fluorescence spectra. The instrument has low temperature attachments. The excitation sources available are 320, 375 and 450 nm. The detection system allows measuring excited state lifetime from ps to s. The FluoAuto software feature creates automated sample measurement sequences. |
| Note: | Logbook entry is a must. |

| **Necessary information** | |
|---|---|
| Operator's Name: Trained students<br>Facility's Mail id: cif@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext no: 1268 | <u>Location of the instrument</u><br>Room no: N-301<br>Building : Research Complex |
| Faculty in Charge: Prof. Pradipta Purkayastha<br>Mail id of the Faculty in Charge: ppurkayastha@iiserkol.ac.in | |

| **Rate Chart , Booking Policy and Instructions** |
|---|
| Internal: Department policy<br>External (Academia): Rs. 2000 + 18%GST (per slot of 6 hours)<br>External (Industry): Rs. 5000 + 18%GST (per slot of 6 hours)<br><u>Internal booking</u>: Department policy<br><u>External booking</u>: Contact the FIC by email |

# Two Isotope Ratio Mass spectrometer and its peripherals (two Gas Bench II, Flash 2000, Trace GC-TC and Kiel IV Carbonate)

| | |
|---|---|
| **Made** | Thermo Fisher Scientific |
| Model: | MAT 253 & DELTA V PLUS |
| Specification: | Our isotope ratio mass spectrometers (IRMS) are the instruments of choice for measuring stable isotope signatures with extreme precision and sensitivity, enabling the user to gain unique insights into the history and origin of compounds found in a variety of samples. |
| Note: | User must select peripheral as per requirement. |

| **Necessary information** | |
|---|---|
| Operator's Name: Mahesh Ghosh<br>Operator's Mail id:<br>mahesh.jta@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext.: 1497 | Location of the instrument<br>Room no: E043<br>Building : Research complex |
| Faculty in Charge: Prof. Prasanta Sanyal<br>Mail id of the Faculty in Charge: psanyal@iiserkol.ac.in<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail | |

**Rate Chart and Booking policy [Per Sample]**

Internal: Department policy

**IRMS charges for different peripherals (per Sample)**:

**a) Gasbench II** (for both δD and $\delta^{18}O$ isotope ratio in water): *External (Academia)*: 1500 + 18% GST, *External (Industry):* 2000 +18 % GST.

**b) Keil IV Carbonate** (for both $\delta^{13}C$ and $\delta^{18}O$ isotope ratio in carbonate): *External (Academia):* 1000 + 18% GST, *External (Industry):* 2000 +18 % GST.

**c) Trace GC-TC** (for compound specific analysis of each isotope $\delta^{13}C$ and δD of organic samples): *External (Academia):* 2000 + 18% GST, *External (Industry):* 4000 +18 %. GST

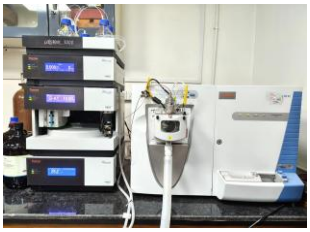
**d) Flash 2000 Elemental Analyzer** (for each isotope $\delta^{15}N$ , $\delta^{13}C$ and $\delta^{18}O$ of organic samples): *External (Academia):* 1000 + 18% GST, *External (Industry):* 2000 +18 % GST.

**e) Gas Bench II** (for both $\delta^{15}N$ and $\delta^{18}O$ isotope ratio of dissolved nitrate in water): *External (Academia):* 2500 + 18% GST. *External (Industry):* 3000 +18 % GST.

Internal booking: Department policy

External booking: Contact Operator(s) by mail

# LCMSMS

| | |
|---|---|
| **Made** | Thermo Fisher Scientific |
| Model: | LTQ XL |
| Specification:  | Liquid chromatography/mass spectrometry (LC/MSMS) brings powerful analytical capability to a wide range of applications. Complete LC/MS workflows feature sample preparation, InfinityLab chromatography, and mass spectrometry, as well as software to acquire high-quality data and turn it into definitive answers.<br><br>Liquid chromatography/mass spectrometry instruments provides the versatility and performance to solve virtually any analytical challenge. A broad selection of ion sources enables the most flexible detection for the variety of compound classes amenable to HPLC separation and beyond. Powerful software along with curated compound databases allow you to quickly set up an method for your specific application. |
| Note: | |

| **Necessary information** | |
|---|---|
| Operator's Name: Mahesh Ghosh<br>Operator's Mail id:<br>mahesh.jta@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext.: xxxx | Location of the instrument<br>Room no: E043<br>Building : Research complex |
| Faculty in Charge: Prof. Prasanta Sanyal<br>Mail id of the Faculty in Charge: psanyal@iiserkol.ac.in<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail : mahesh.jta@iiserkol.ac.in | |

| **Rate Chart and Booking policy [Per Sample]** |
|---|
| Internal: Department policy<br>*External (Academia):* 1500 + 18% GST, *External (Industry):* 2000 +18 % GST.<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail |

# ICP-Q-MS

| **Made** | |
|---|---|
| Model: | Thermo Fisher |
| Specification: | ICP-MS—**inductively coupled plasma mass spectrometry**— is a fast, multielement, atomic spectrometry technique used for inorganic, elemental analysis. ICP-MS can measure almost every element and provides low detection limits, high sample throughput, and measurement over a wide concentration range |
| Note: | |

| **Necessary information** | |
|---|---|
| Operator's Name: Santosh Ch Das<br>Operator's Mail id:<br>santosh.das@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext.:xxxx | Location of the instrument<br>Room no: E039<br>Building : Research complex |
| Faculty in Charge: Dr. Sanjay Kumar Mandal<br>Mail id of the Faculty in Charge: sanjaykm@iiserkol.ac.in<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail | |

| **Rate Chart and Booking policy [Per Sample]** |
|---|
| Internal: Department policy<br>**a)** Major elements (Si, Ca, Na, K, Mg, Al, Mn, Fe, P, and Ti) in processed sample *External Academia*: 500 + 18% GST *External (Industry):* 1000 +18 % GST.<br>**b)** Trace/Rare Earth elements in processed sample: *External (Academia):* Rs. 1500 (up to 10 elements and Rs. 150 will be charged extra for each additional element) + 18% GST. *External (Industry):* Rs. 3000 (up to 10 elements and Rs. 300 will be charged extra for each additional element) + 18% GST.<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail |

# ICP OES

| **Made** | |
|---|---|
| Model: | iCAP 7400 Plus series |
| Specification: | Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES) is an analytical technique used to determine the elemental composition of various samples. It works by exciting atoms and ions in a high-temperature plasma, which then emit light at characteristic wavelengths. This emitted light is analyzed to quantify the elements present in the sample. ICP-OES is widely used in fields such as environmental monitoring, food safety, and materials science for its ability to detect trace elements with high sensitivity and accuracy. |
| Note: | |

| **Necessary information** | |
|---|---|
| Operator's Name: Jay Karmakar<br>Operator's Mail id: jk24rs067@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext.:1545 | Location of the instrument<br>Room no: W119 (W122)<br>Building : Research complex |
| Faculty in Charge: Dr. Gopal K Dharbha<br>Mail id of the Faculty in Charge: gkdarbha@iiserkol.ac.in<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail | |

| **Rate Chart and Booking policy [Per Sample]** |
|---|
| Internal: Department policy<br>a) Without Hydride generator: External (Academia): 2000 + 18% GST External (Industry): 5000 +18 % GST. b) With Hydride External (Academia): 4000 + 18% GST External (Industry): 10000 +18 % GST<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail |

# WDXRF

| | |
|---|---|
| **Made** | Bruker-AXS, Germany |
| Model: | **S8 TIGER** |
| Specification: | X-ray fluorescence (XRF) spectrometry is a non-destructive analytical technique used to obtain elemental information from different types of materials.<br>It is employed in many industries and applications including: cement production, glass production, mining, mineral beneficiation, iron, steel and non-ferrous metals, petroleum and petrochemicals, polymers and related industries, pharmaceuticals, healthcare products and environmental.<br>Spectrometer systems are generally divided into two main groups: wavelength dispersive systems (WDXRF) and Energy dispersive systems. The difference between the two lies in the detection system. |
| Note: | |

| **Necessary information** | |
|---|---|
| **Operator's Name:** Biswajit Giri<br>**Operator's Mail id:**<br>giri.biswajit605@iiserkol.ac.in<br>**LAN no: +91 33 61360000** Ext.:1494 | Location of the instrument<br>Room no: W120<br>Building : Teaching and Research complex |
| Faculty in Charge: Prof. Manoj Kr Jaiswal<br>Mail id of the Faculty in Charge: manoj@iiserkol.ac.in<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail | |

| **Rate Chart and Booking policy [Per Sample]** |
|---|
| Internal: Department policy<br>**Pre Processing Sample:** Ten grams of finely grinded and dried sample (Soil, Rock, Sediment etc.) powders (at least –200 mesh sizes) are to be supplied with Loss on Ignition (LOI) values. Pressed pellets (Major and trace elements): External (Academia): 1600 + 18% GST External (Industry): 2500 +18 % GST.<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail |

# XRFUSE2 ELECTRIC

| **Made** | **XRF SCIENTIFIC** |
|---|---|
| Model: | XR FUSE 2 |
| Specification: | The machine represents the best elements of established fusion range with significant advances in safety and design. Designed with the latest thermal imaging technology, customer tested in the biggest laboratories in the world. The xrFuse 2 is designed with the customer in mind.<br>**Key Technical Specifications**<br>Temperature range to 1250C<br>24 programmable recipes<br>**Zero Contamination**<br>The ceramic cradle and holders ensure that the environment for creating beads has zero contamination in comparison with that typically found with Inconel based solutions.<br>**Process Visibility**<br>The glass viewing panel allows the customer to view the key elements of the fusion process in action. This is particularly important for method development. |
| Note: | NA |

| **Necessary information** | |
|---|---|
| **Operator's Name:** Biswajit Giri<br>**Operator's Mail id:**<br>giri.biswajit605@iiserkol.ac.in<br>**LAN no: +91 33 61360000** Ext.:1494 | Location of the instrument<br>Room no: W-120<br>Building : Teaching and Research complex |
| Faculty in Charge: Prof. Manoj Kr Jaiswal<br>Mail id of the Faculty in Charge: manoj@iiserkol.ac.in<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail | |

| **Rate Chart and Booking policy [Per Sample]** |
|---|
| Internal: Department policy<br>Fusion pellets (Major elements): External (Academia): 2500 + 18% GST External (Industry): 3500 +18 % GST.<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail |

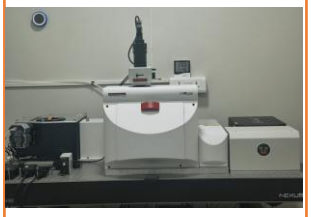
# GCMS

| | |
|---|---|
| **Made** | **Agilent** |
| Model: | 7890 A, 7000 B and 8890 GC and 7010 C |
| Specification: | GC-MS/MS (Gas Chromatography-Tandem Mass Spectrometry) is a highly sensitive analytical technique that combines gas-phase separation with two sequential mass spectrometry stages. It is primarily used for identifying and quantifying ultra-trace levels of volatile and semi-volatile compounds within complex matrices, such as food contaminants and environmental pollutants.<br>The **Agilent GC/MS/MS** configurations (paired systems like the 7890A/7000B or 8890/7010C) combine powerful capillary gas chromatography with highly sensitive **triple quadrupole mass spectrometry**. They are industry standards designed for ultra-trace, highly specific identification and quantification of complex matrices (e.g., pesticides, environmental pollutants, and toxicology) |
| Note: | |

| **Necessary information** | |
|---|---|
| Operator's Name: Mahesh Ghosh<br>Operator's Mail id:<br>mahesh.jta@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext.: 1497 | Location of the instrument<br>Room no: E043<br>Building : Research complex |
| Faculty in Charge: Prof. Prasanta Sanyal<br>Mail id of the Faculty in Charge: psanyal@iiserkol.ac.in<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail : mahesh.jta@iiserkol.ac.in | |

| **Rate Chart and Booking policy [Per Sample]** |
|---|
| Internal: Department policy<br>External (Academia): i) Characterization with FID: 500 + 18% GST ii) Characterization with MS MS: 500 + 18% GST External (Industry): i) Characterization with FID: 1000 + 18% GST ii) Characterization with MS MS: 2000 + 18% GST.<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail |

# OPTIR

| **Made** | **Photothermal corporation** |
|---|---|
| Model: | mIRAGE-R |
| Specification:  | **Optical Photothermal Infrared (O-PTIR) spectroscopy** is an advanced analytical technique used to determine the chemical composition and spatial distribution of sub-micron features in a sample. It works by exciting the molecular vibrations within a sample using a pulsed, tunable infrared (IR) laser, which causes localised photothermal heating and slight thermal expansion. A secondary, visible probe laser is simultaneously focused on the exact same spot to detect these tiny thermal fluctuations by measuring changes in the reflected or scattered visible light. |
| Note: | The samples should be on a smooth, solid surface. |

| Necessary information | |
|---|---|
| Operator's Name: Jay Karmakar<br>Operator's Mail id: jk24rs067@iiserkol.ac.in<br>LAN no: +91 33 61360000 Ext.:2122 | Location of the instrument<br>Room no: W128<br>Building : Research complex |
| Faculty in Charge: Dr. Gopal K Dharbha<br>Mail id of the Faculty in Charge: gkdarbha@iiserkol.ac.in<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail | |

| Rate Chart and Booking policy [Per Sample] |
|---|
| Internal & External: Department policy<br>Internal booking: Department policy<br>External booking: Contact Operator(s) by mail |

FUND TRANSFER **THROUGH PUBLIC FINANCIAL MANAGEMENT SYSTEM (PFMS) DETAILS OF ORGANIZATION**

| | | |
|---|---|---|
| 1 | PFMS Unique Code | 601995 |
| 2 (i) | Agency Name (Name of the University/ Institute/ College, etc.) | **INDIAN INSTITUTE OU SCIENCE EDUCATION** AND **RESEARCH KOLKATA** |
| 2 (ii) | Agency Type (Statutory Bodies/Autonomous/NGO/Society etc.) | **AUTONOMOUS** |
| 2 (iii) | Hierarchy of Agency (Central/State/ District/Block/Tehsl/Panchayat Village) | **CENTRAL** |
| 2 (iv) | Act/registration No. | THE NATIONALINSTITUTESOF TECHONOLOGY (AMENDMENT) ACT, 2012 (No.28 of 2012) (copy enclosed) |
| 2(v) | Date of Registration | Amendment Act. Dt. Gazette notification is June8,20l2 |
| 2 (vi) | Registering Authority | Secretary to Government of India |
| 3 | State of Registration | West Bengal |
| | TIN No. (If available) | NA |
| 4 | TAN No. | CALI0237lF |
| 4 (i) | Pan No. | **AAAAI2170E** |
| 4 (ii) | GST No. | **19AAAAI2170E1 Z0** |
| 5 | Complete Contact Address of the Agency | CV Raman Building (AAC) |
| 5 (i) | Block No./Building/Name of Premises | Mohanpur |
| 5 (ii) | Road/Street/Post Office | Mohanpur |
| 5 (iii) | Area/Locality | |
| 5 (iv) | City/ District | Nadia |
| 5 (v) | State | West Bengal |
| 5 (vi) | Pin code | 741246 |
| 6 | Contact Person | Mr. Chinmay Sarkar |
| 6 (id | Designation | Assistant Registrar, Research and Development |
| 6 (ii) | Phone Number (Land Line) | 03361360032 |
| 6 (iii) | Alternate Phone No./Mobile No. | 033 61360060 |
| 6 (iv) | Official Email address | rndAiiserkol.ac.in |
| 7 | Bank Details | |
| 7 (i) | Institution's Account Name (As per bank record) | **IISER KOLKATA EARMARXED FUND** |
| | Account No . | **325001000001647** |
| 7 [iii) | IFSC Code | **IOBA0003250** |
| 7 (iv) | Bank name | **INDIAN OVERSEAS BANK** |
| 7 (v) | Branch Name | Mohanpur |
| 7 (vil | Complete Branch address | P.O.: Krishi Viswavidyalaya, Mohanpur Dist. Nadia, West Bengal 741 252 |
| 7 (vi) | MICR No. | 700020092 |
| 7 (Viii) | Account Type | SAVING |

Certified that the Institute's account is an RTGS/ECS/NEFT enabled branch. 1 hereby declare that the particulars given above are correct and complete. The above Agency's Account No. and bank details are registered/ mapped under PFMS

Date:

P. Sly. 31/01/25

Signature of the Competent Authority of the Agency with seal.

C ertified that the particulars furnished above are correct as per our records

Date:

Signature of the'Authorized official with seal.

**INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH KOLKATA OFFICE OF RESEARCH AND DEVELOPMENT**
Mohanpur – 741 246
Phone: +91 33 6630 0060, Fax: + 91 33 2334 7425
Email: rnd@iiserkol.ac.in, Web: http://dord.iiserkol.ac.in

**FORM NO. R&D 34**

# PAYMENT FORM FOR USE OF CENTRAL INSTRUMENTS FACILITY (CIF)

| | |
|---|---|
| **Instrument to be used** | |

| | |
|---|---|
| **Name of user** | |
| **Designation** | |
| **Address** | |
| **Telephone/Mobile No.** | |
| **Email** | |

| | | |
|---|---|---|
| **Amount of Charges** | ₹ | Rupees only |

| **User Category** *(pl. tick)* | **Mode and source of payment** | | | | | |
|---|---|---|---|---|---|---|
| Other Govt. Institutions | **Demand Draft No.** | | | | **Date** | |
| Industry/Private | **Demand Draft No.** | | | | **Date** | |
| IISER Kolkata *(internal fund transfer)* | **PDAP** | | **Cheque** | | **Others** | |
| | **Project Name** | | | | | |

| |
|---|
| Nature of analysis and sample information: |

**UNDERTAKING**

- I/We undertake to abide by the safety and sample preparation guidelines and precautions during testing of my samples. I/We shall not claim for any damage/harm to my samples submitted for the analysis. ■ I/We shall give due acknowledgement of the use of Instruments in published papers/thesis/reports and also send a copy to IISER Kolkata.
- IISER Kolkata shall not take any responsibility about the analysis, interpretation and publication of data acquired using the Central Instrument Facilities. ■ I/We have attached herewith the demand draft or cheque or authorizing to deduct the necessary user charges as mentioned above.

Signature of User
Date:

**Job Order Number (Sl.No. of Analysis):**

**Important Note:**

- ✔ Kindly consult operating in-charge for all details regarding sample before bringing your samples for analysis.
- ✔ The sample charge has to be paid in advance. All external payments should be made in the form of DD in favour of "IISER Kolkata" and payment should be sent to the Dean, R&D, IISER Kolkata, Mohanpur - 741 246.
- ✔ The form will be finally sent to Office of R&D along with the DD/Cheque for depositing in bank accounts and also for boo-keeping of internal fund transfer from PDAP/Project/other sources.
- ✔ User charges are uploaded in the Intranet/website.

**For Office Use Only**:

Date of submission of requisition:

Payment: ₹ DD No. Dated:

Date of receiving of sample:

**Signature of Operating In-charge**

**Date:…….**

**Signature of Instrument Faculty In-charge**

**Date: …….**

*Please print the form on both sides.*

**INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH**
**KOLKATA OFFICE OF RESEARCH AND DEVELOPMENT**
Mohanpur – 741 246
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Email: icif@iiserkol.ac.in Web: http://dord.iiserkol.ac.in

**REFUND** FORM FOR USE OF CENTRAL INSTRUMENTS FACILITY (CIF)
***(To be filled by the user only, fill in Block letters)***

| | |
|---|---|
| Name of user | |
| Designation | |
| Address | |
| Telephone/Mobile No. | |
| Email | |

| | |
|---|---|
| Amount of Refund<br>₹ | Rupees<br>only |
| Bank Acc. number | |
| Acc. holder's name | |
| IFSC code | |
| Address of the Bank | |
| Reason of Refund<br>Excess amount sent/ Experiment not done / Any other reason(s) | |

**UNDERTAKING**

- I/We declare that the above set of information are true to my knowledge.

Signature of User
Date:

**Verification by concerned authority**
**Official purpose**

| |
|---|
| Verified by (Operator's signature with date) |
| Forwarded by (FIC's signature with date) |

- *The refund process may take certain amount of time IISER Kolkata does not take any responsibility in case of payment failure.*