IMB X-Ray Facility

X-Ray Facility

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Current Status of the Facility

• Home usage = Hours of generator operation
• Last year’s home usage: ~2000 hours
• Type & percent usage based on history
  – Crystal screening (8h “work-day”): ~65%
  – Data collection (24h+ “full-days”): ~35%
• Last year’s synchrotron usage: 5 x 24h + 6 x mail-in
• 5-10% XRF Usage for diagnostics and repair

Annual Expenses of the Facility

• Consumables: ~$5,500/year
  – Liquid nitrogen, gas helium, x-ray filaments, seals, bearings, lab supplies, etc.,
• Non-consumables: ~$5,500/year
  – Equipment service & repair, software & hardware, professional development, etc.,
• Synchrotron Membership Fee: ~12,500/year
  – Gives ~3 mail-in (FedEx) data collection
  – Gives 6 (3 ID+BM) full (24h) data collection

XRF Home Usage Fee

<table>
<thead>
<tr>
<th>Usage Type</th>
<th>FSU Users</th>
<th>Non-FSU Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full day (24 h)</td>
<td>$2.5</td>
<td>$10</td>
</tr>
<tr>
<td>Work day (8 h)</td>
<td>$4.0</td>
<td>$16</td>
</tr>
<tr>
<td>Total Revenue</td>
<td>$2160</td>
<td>$480</td>
</tr>
</tbody>
</table>

Total Revenue = $5616

Assumptions:
• Full day = 24h of continuous data-set collection
• Work day = 8h of crystal-screening
• 36 FSU full-day/year calculated at hourly rate (36x24x$2.5)
• 108 FSU work-day/year calculated at hourly rate (108x8x$4.0)
• 2 Non-FSU full-day/year
• 5 Non-FSU work-day/year
• 5-10% of time dedicated to XRF usage
• 1/3 data-set (3 full days) and 9 screens (9 work days)/month

Fee comparison chart

<table>
<thead>
<tr>
<th>Facility</th>
<th>£/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yale University School of Medicine (X-Ray)</td>
<td>275</td>
</tr>
<tr>
<td>Weill Cornell Medical College (X-Ray)</td>
<td>300</td>
</tr>
<tr>
<td>Iowa State Office of Biotech (X-Ray)</td>
<td>300</td>
</tr>
<tr>
<td>Biomolecular Structure, U Colorado Health Center (X-Ray)</td>
<td>250</td>
</tr>
<tr>
<td>U Wisconsin-Columbus, Structural Biology Core (X-Ray)</td>
<td>550</td>
</tr>
<tr>
<td>Penn State Hack Institute Life Sciences</td>
<td>350</td>
</tr>
<tr>
<td>Electron Microscopy, Bio Unit I, FSU</td>
<td>450</td>
</tr>
<tr>
<td>NMR Lab, Chemistry, FSU</td>
<td>640</td>
</tr>
<tr>
<td>Laser Lab, Chemistry, FSU</td>
<td>750</td>
</tr>
<tr>
<td>Proposed IMB XRF Fee, FSU 150 full day</td>
<td>32.50</td>
</tr>
<tr>
<td>~50 work day</td>
<td>46.40</td>
</tr>
<tr>
<td>Day =10-24 hours; facility manager salary</td>
<td></td>
</tr>
</tbody>
</table>
Synchrotron Usage Fee

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>Proposal</th>
<th>Fee</th>
<th>Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mail-in data collection (5)</td>
<td>$250</td>
<td>$1500</td>
<td></td>
</tr>
<tr>
<td>In-person/remote collection (6)</td>
<td>$2000</td>
<td>$10,000</td>
<td></td>
</tr>
<tr>
<td>Total Revenue</td>
<td></td>
<td>Total: $11,500</td>
<td></td>
</tr>
</tbody>
</table>

XRF Expenses & User Fees

- Consumables: ~$5,500/year (½ XRF budget)
  - Liquid N₂, gas He, cryo accessories: 38%
  - Filaments, bearings, seals: 23%
  - Lab & computer supplies: 28%
  - Minor parts & supplies: 14%
- Home-use fee will recoup ½ XRF budget
- Other ~ ½ will be covered by IMB
- Synchrotron fee will recoup 1/3 FSU expense
- Other 2/3 will be covered by IMB

Typical projected cost/lab/year

- **Li lab**
  - Synchrotron: $9,000 ($8,000+1000; 4 remote + 4 mail-in/year)
  - Home: $2,000 (~6 screens/month)
  - Li lab total: ~$11,000/year
- **Blaber lab**
  - Home: ~$2,000 (1 data-set + 2 screens/month)
  - Mail-in: ~$1,000 (4 mail-in/year)
  - Blaber lab total: ~$3,000/year
- **New lab**
  - Home: ~$1,000 (½ data-set/month + 1 screen/month)
  - Synchrotron: ~$1,500 (2 mail-in and ½ remote/year)
  - New lab total: ~$2,500/year
- **Visitor**
  - Home: ~$1,000 (1 data-set/year + 5 screens/year)
  - Visitor total: ~$1,000/year

Plan of action

- One IMB Core Auxiliary Account for all three facilities XRF+PBF+PEF
- Plan will be implemented in Aug 2009
- Fees will be billed monthly for Home use
- Fees will be billed monthly for synchrotron
- Synchrotron fee will be eased in
- Rates will be announced every summer (May)
- Rates will be reevaluated every winter (Dec)
- No charge for exploratory (one-time) usage
- XRF usage will be 5-10% of the total (no-fee)