Recollections of Pittsburgh Diffraction
Conferences Past: 1977 – 2023

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What I was told (1977) and later confirmed

The Pittsburgh Diffraction Conference (PDC) had been the premier crystallographic meeting in the US, attended by virtually all major crystallographers, and was the place to present and discuss major findings and advances in diffraction science!

Chronology of crystallographic organizations

PDC  1943
IUCR  1946 (first congress 1948)
ACA  1950
Diffraction Dominates the PDB both in Numbers, and Especially in Resolution

210,554 known protein structures in PDB as of Oct 12th 2023

<table>
<thead>
<tr>
<th>Method</th>
<th>No.</th>
<th>%</th>
<th>2.5Å</th>
<th>2.0Å</th>
</tr>
</thead>
<tbody>
<tr>
<td>XRAY</td>
<td>178,895</td>
<td>85.0%</td>
<td>78.8%</td>
<td>50.5%</td>
</tr>
<tr>
<td>EM</td>
<td>17,103</td>
<td>8.1%</td>
<td>5.7%</td>
<td>1.1%</td>
</tr>
<tr>
<td>NMR</td>
<td>14,173</td>
<td>6.7%</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

My PDC Presentations

**My First PDC Presentation**

“Phase Extension and Refinement of Bence Jones Protein Rhe” 1978

PDB entry RHE1, ~ No. 50, deposited 11/28/1977, so in first 0.03%

PDB Statistics: Growth of Structures from X-ray Crystallography

Experiments Released per Year

Experimental methods such as X-ray crystallography, NMR spectroscopy, and 3D electron microscopy are used to determine the location of each atom relative to each other in the molecule.

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**Starting model from Richards Box at 3.0Å Resolution**
Key developments:
- Stereo model/density
- Chartpak Tape
- Interactive graphics
**PDC at Purdue (1979)**

"Hydrogen Bonding and Water Structure in Bence Jones Protein Rhe at 1.6 Å Resolution"

**Key recollections:**
- The drive (A. T.)
- The dinner (M. R. & P. S.)
- The posters and reception (J. J. & P. F)

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**PDC Organizational Activities**

Chairman and a Local Organizer, 38th Annual PDC, 1980

**Key recollections:**
- A lot of work!
- Sidhu award to Greg Petsko

Co-chairman, Session on Supercomputers and Crystallography,
44th Annual Pittsburgh Diffraction Conference, 1986

Chairman, Session on Computational Methods for X-Ray
Crystallography, 45th Annual Pittsburgh Diffraction Conference, 1987
**PDC at Pittsburgh (1996)**

“Recent Developments, Strategies and Algorithms for Macromolecular Structure Determination with the PHASES Program Package”

Key recollections: M. R., M. S.

**PDC at Pittsburgh (2010)**

“The Pyruvate Dehydrogenase Multienzyme Complex: Structure-function Studies on its Components and their Interactions”

Two disordered loops (401-413) and (541-557) become ordered!
Remembering Chung Soo Yoo
Died August 31, 1983
KAL Passenger Flight 007 shot down by Russian pilot

Some of his key, joint publications


