

2nd UK – Japan Winter School In High Energy Density Science

Welcome



Definition

High Energy Density > 10^{11} Joules / m³

Pressures > 1 MB

**U.S. National Research Council 2003 Report
“High Energy Density Physics: The X-Games of Contemporary Science”**

High energy density science encompasses

plasma physics

Laser and particle beam physics

Materials science & condensed matter physics

Nuclear physics

Atomic & molecular physics

Fluid dynamics and magneto-hydrodynamics

Intense radiation-matter interactions

Astrophysics



68th Scottish Universities Summer School in Physics

**Laser-Plasma Interactions and Applications
14th – 27th August 2011**

<http://sussp68.phys.strath.ac.uk/>



Aims of the Winter School

- **Introduction to computational methods for PhD students and post-doc's by world renowned experts from the UK & Japan**
- **Brief view of academic & cultural life in the capital city of Scotland**
- **Introduce the next generation leaders in science and industry from both countries**
- **Enhance existing collaborations and explore new possibilities in a more informal setting**



**Science & Technology
Facilities Council**

Facilities

**Synchrotrons
Neutron Scattering
Lasers, FELs
Computing
Telescopes**

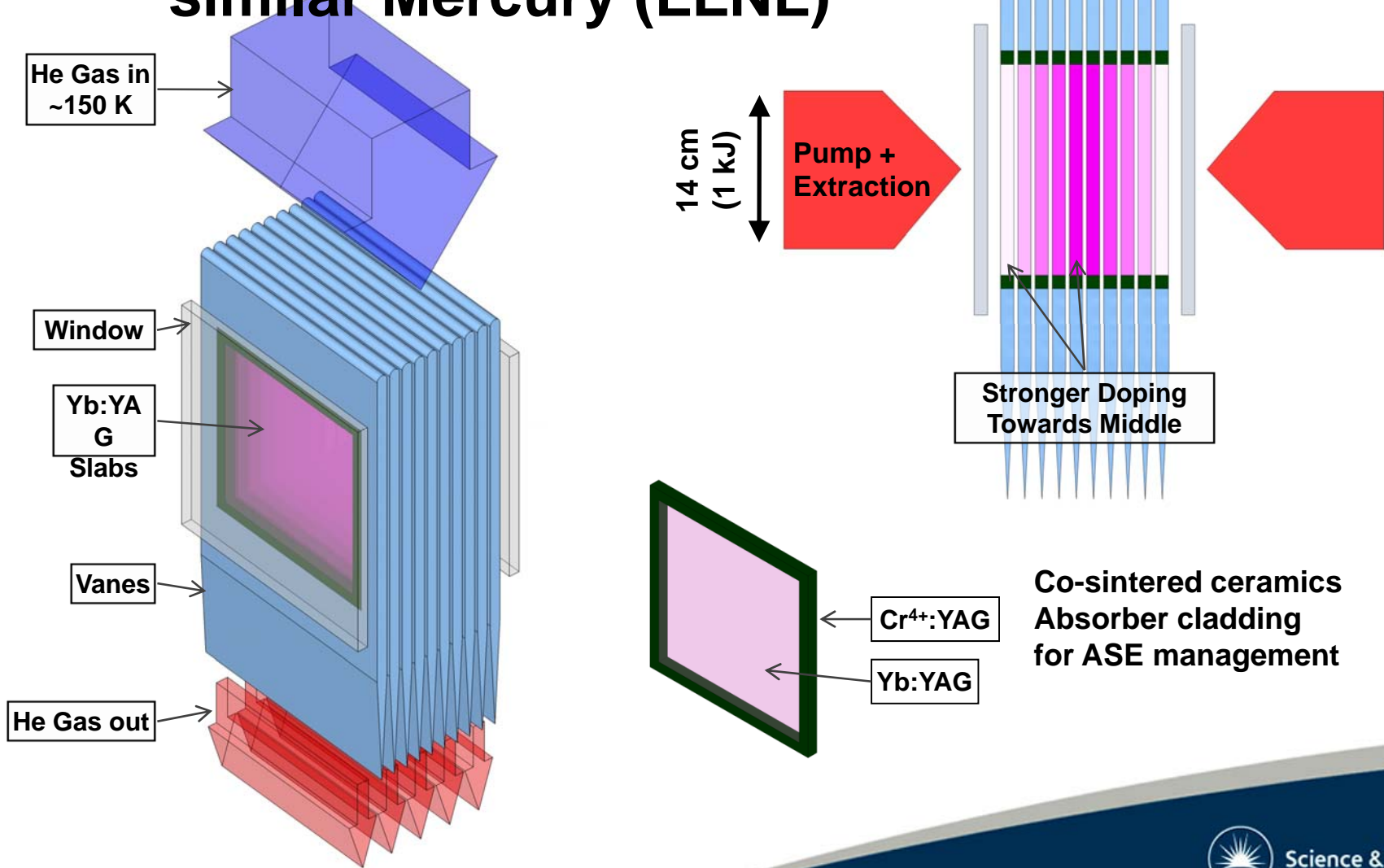
**Accelerator Science
Particle Physics
Space Physics
Nuclear Physics, ...**

Public/private partnership

Expanded campus; major facilities; 20 year investment plan

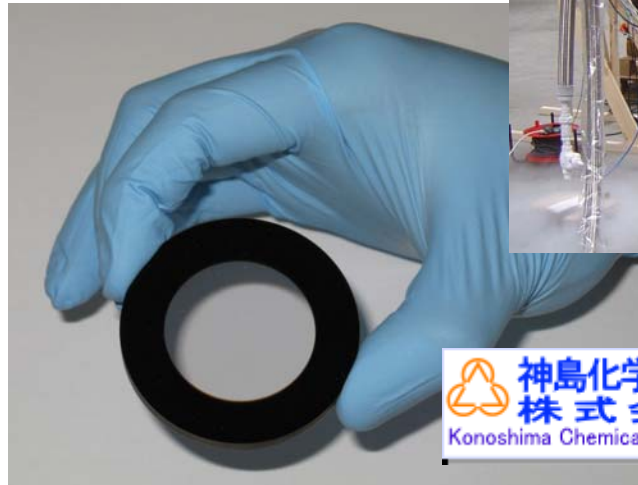
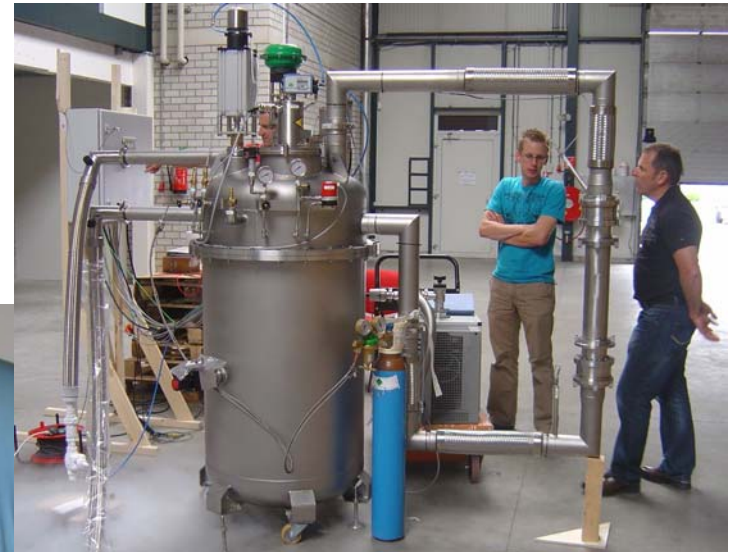
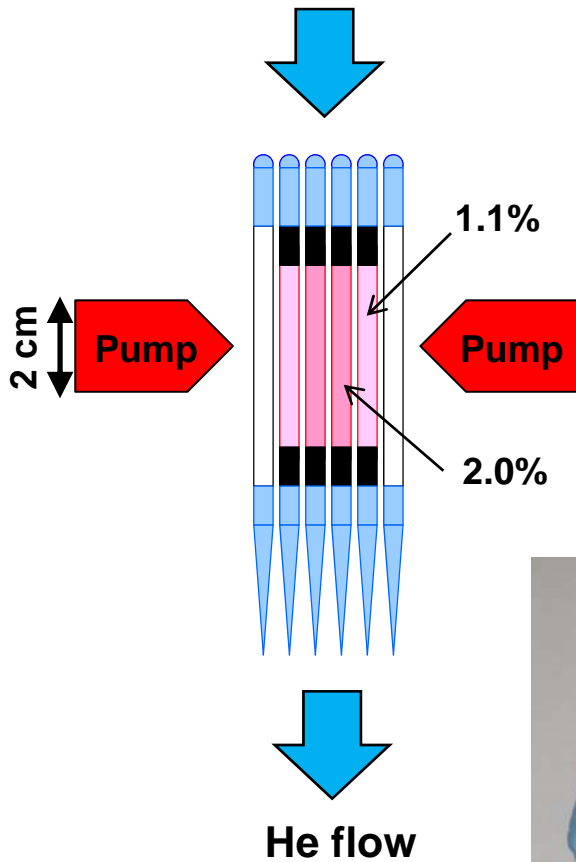
DiPOLE Amplifier Concept

Distributed cooling by cold He gas flow,
similar Mercury (LLNL)



The DiPOLE Prototype

Dimensioned for ~10 J output
4 slabs, 2 doping levels

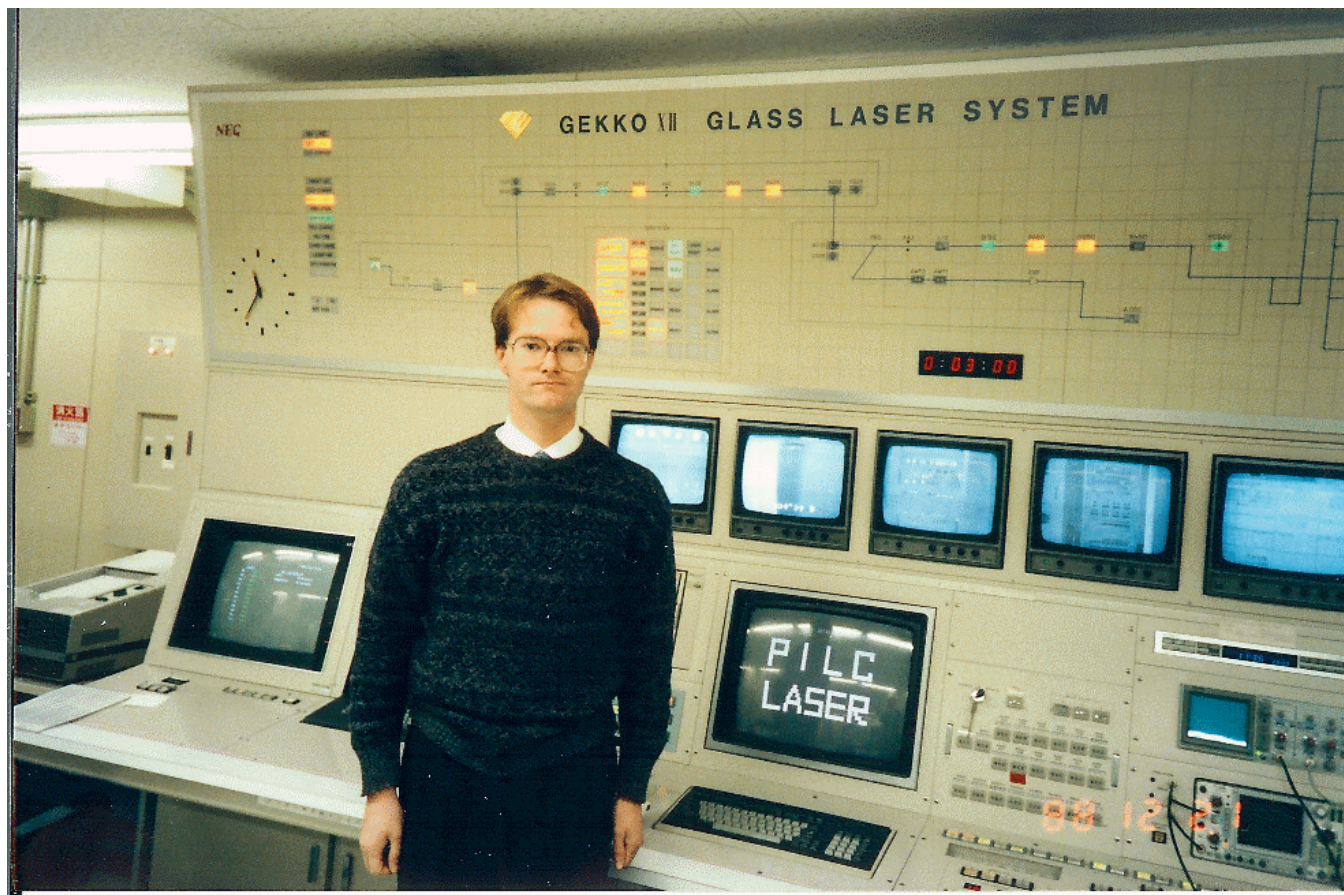


神島化学工業
株式会社
Konoshima Chemical Co.,Ltd.

DiPOLE

International exchange essential for rapid progress

Imperial College London



Daiwa Adrian Prize Dec 2007



**Apologies received from
Prof Geoff Pert FRS**

Dr John Pasley

**Atomic physics session moved to Friday
FP methods moved to Thursday**