

Welcome to the
2004 Workshop on
Ultrafast X-Ray Science
San Diego, California 2004

Please note: Breakfast (in the restaurant Characters) and lunch (outside on patio or Characters) is included with registration (except Saturday lunch)
Dinner on your own - see restaurant list
Red ticket is for drink at poster session

We welcome you to the

**2004 Workshop on
Ultrafast X-Ray Science**

San Diego, California 2004

**Thank you for contributing so many
outstanding papers, and for traveling
from far and away**

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Ultrafast X-Ray Science
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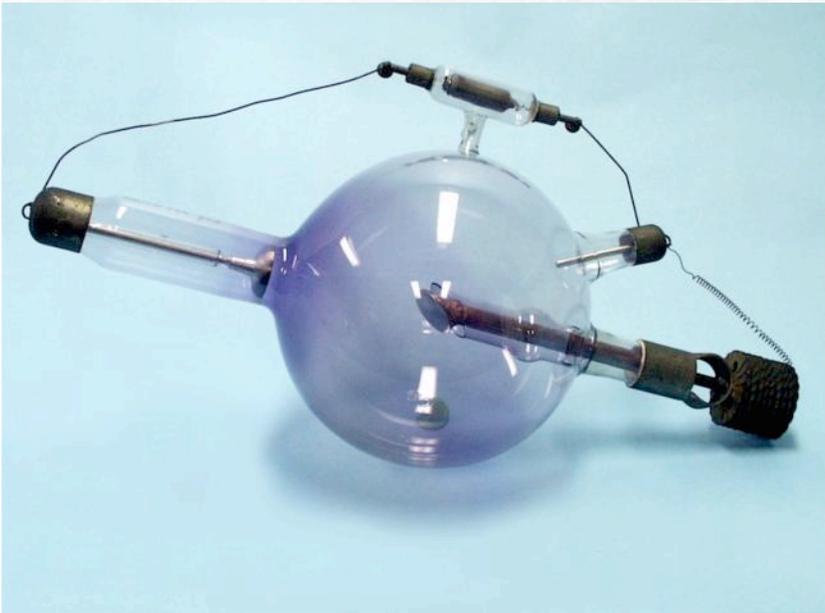
Our sponsors:

**Lawrence Berkeley National Laboratory
Spectra Physics
Varian**

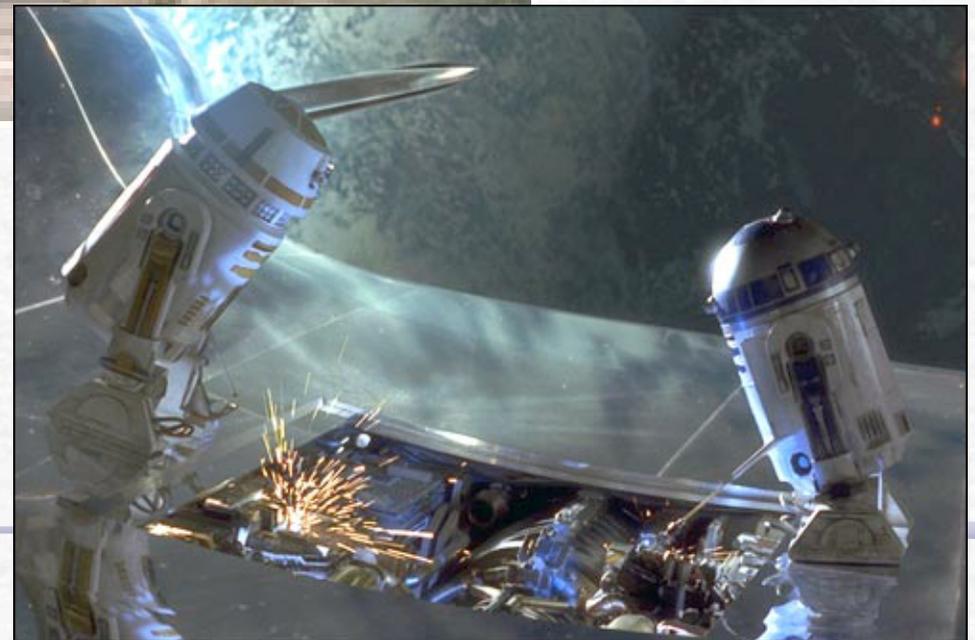
**(corporate sponsors - refreshments at
poster sessions - vendor displays)**

The Evolution of x-rays

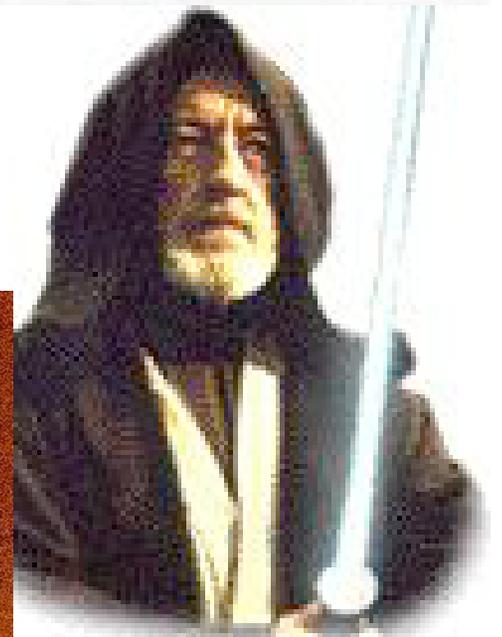
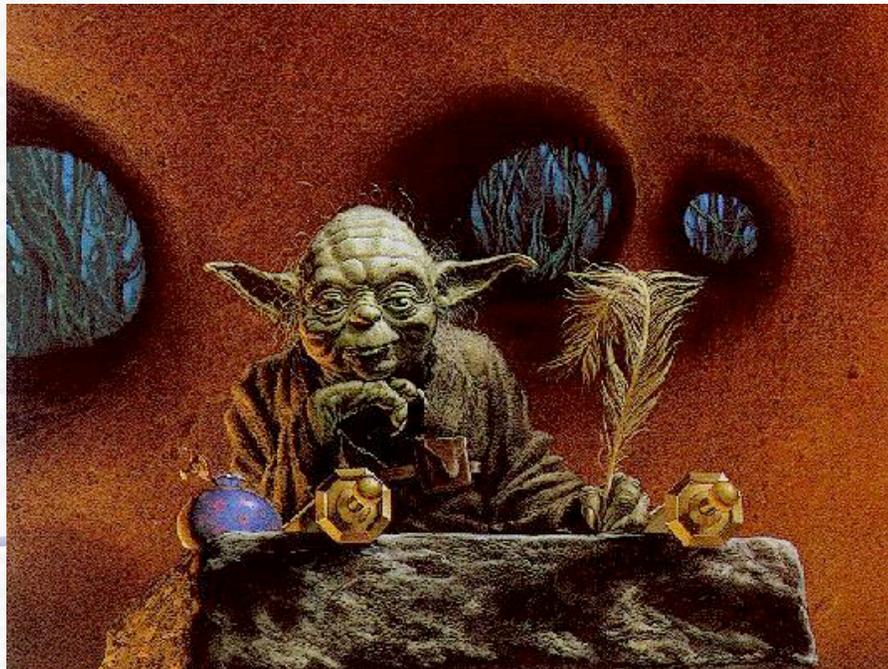
Once upon a time, long, long ago, x-rays were produced by relatively crude $K\alpha$ sources



Then along came
synchrotrons (and lasers)...



Out of near darkness, came
light - and fantastic were
the x-rays, they were



Are Synchrotrons and Lasers Disruptive Technologies for Spectroscopy?

Consider these dualities:

- ☞ Semiconductor vs. vacuum tube
- ☞ Calculator vs. slide rule
- ☞ Telephone vs. telegraph
- ☞ Synchrotron vs. x-ray tube
- ☞ Lamp vs. laser
- ☞ Disruptive technologies eliminate whole fields and create other ones.

Where is science headed?

- **Single molecule processes**
- **Nanoscale objects**
- **Biological systems**
- **Magnetic spin/semiconductors**
- **Origins of life, extraterrestrial science**
- **Coherence phenomena, quantum information**
- **Attosecond electronic processes**
- **Superfluidity, Bose and Fermi statistics**
- **Molecular electronics**

time dynamics will occupy a central role many of in these investigations

By the way, single molecule spectroscopists also like Star Wars
(Sunney Xie web site)



According to this **single-molecule spectroscopic analysis**,

Anakin's midi-chlorian count is off the charts! He has the potential to be a great Jedi.

Get in touch with the Force at...

Synchrotrons and lasers have pioneered static spectroscopies in all fields of science - synchrotrons more towards the x-ray and lasers more toward the visible

Lasers have provided time dynamics with unprecedented details

Both have an appeal to address the x-ray structural aspects of material systems

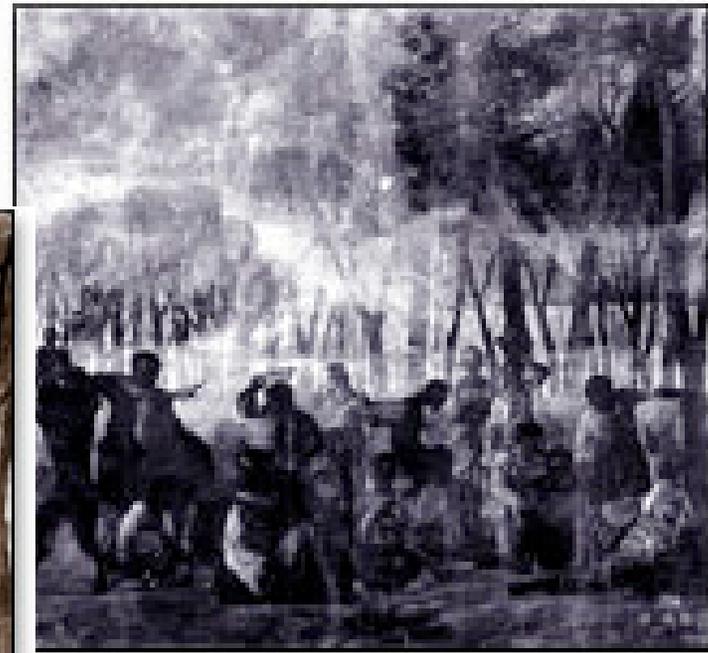
Will there be a marriage of lasers with accelerator-based (linac and recirculating linac) devices to address ultrafast x-ray investigations?

"the Feast of the Gods"



Around 1512, Alfonso d'Este, Duke of Ferrara, commissioned Giovanni Bellini to paint this masterpiece of the Italian Renaissance, the Feast of the Gods. The overall decoration of the Camerino d'Alabastro was given to the court painter, Dosso Dossi, and in 1522, Dosso painted over half of Bellini's canvas. Seven years later, Titian painted over the Feast of the Gods a second time. Thus, in this unique painting, we see the hand of three different painters.

Through X-ray and infrared analysis...



I would like to thank:

Olivia Wong

Rob Johnson

Martha Condon

John Corlett

Kathleen Brower

Our conference executive committee

**Our invited speakers, and others who
contributed oral and poster talks, our
session chairs, breakout session leaders**

