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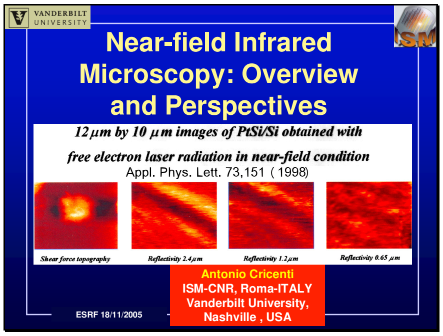

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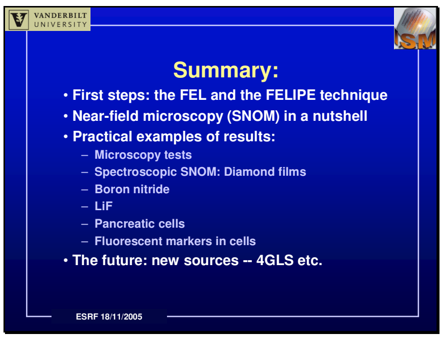

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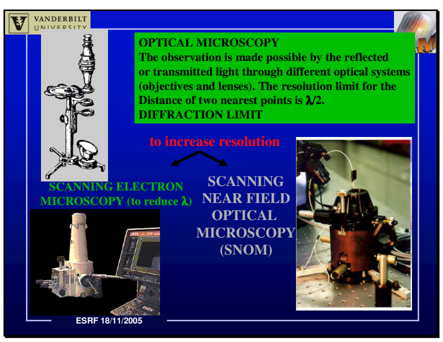

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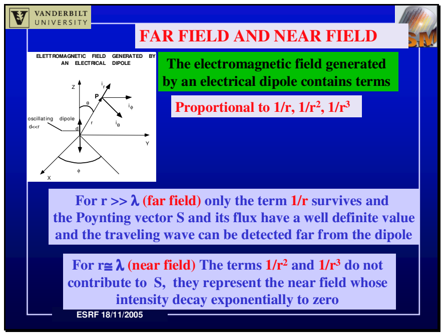

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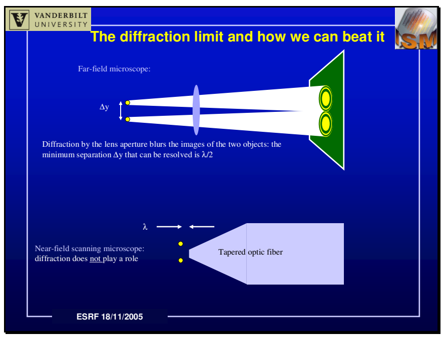

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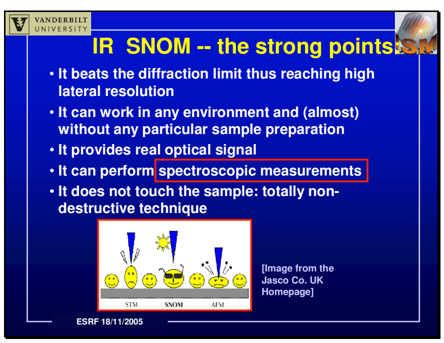

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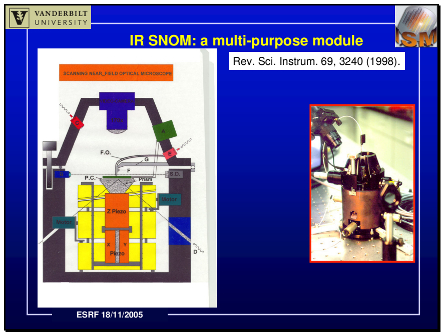

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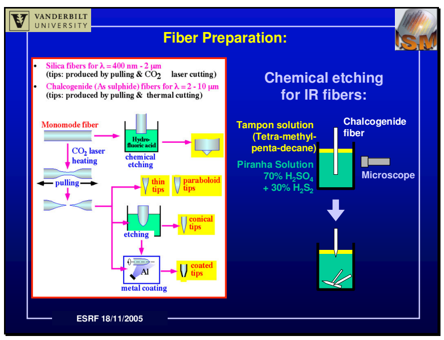

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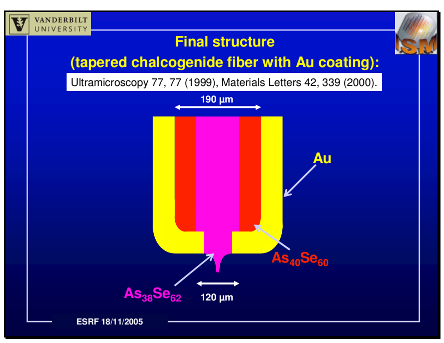

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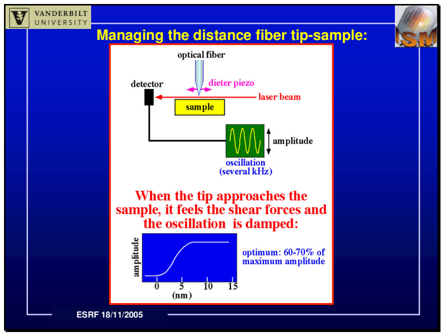

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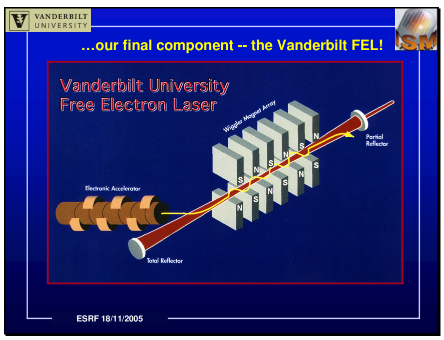

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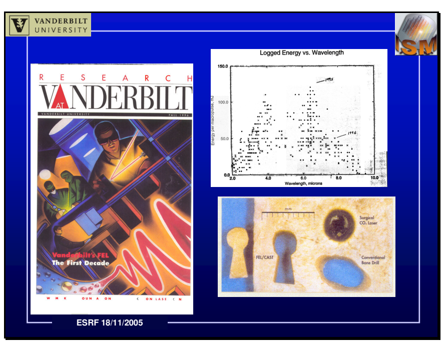

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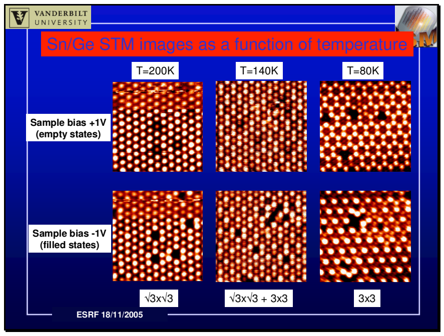

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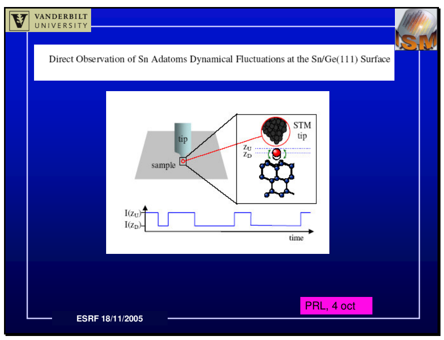

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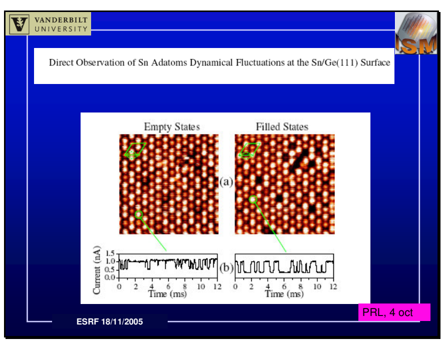

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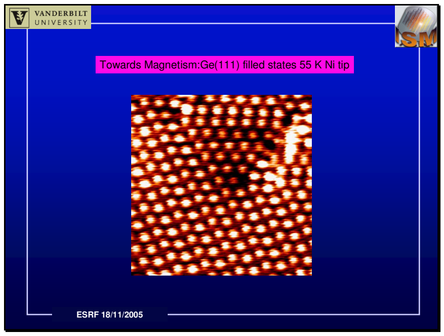

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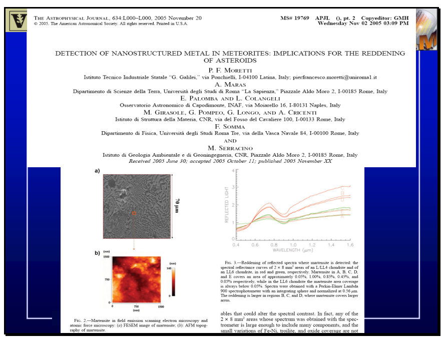
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Wednesday Nov 02 2005 03:09 PM

DETECTION OF NANOSTRUCTURED METAL IN METEORITES: IMPLICATIONS FOR THE REDDENING OF ASTEROIDS

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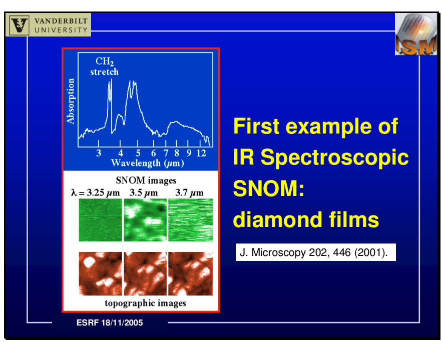
Fig. 2.—Martensite in field emission scanning electron microscopy and atomic force microscopy: (*a*) FESEM image of martensite; (*b*): AFM topography of martensite.

Fig. 3.—Reddening of reflected spectra where martensite is detected: the spectral reflectance curves of 2 × 8 mm^2 areas of an L/LL4 chondrite and of an LL6 chondrite, in red and green, respectively. Martensite in A, B, C, D, and E covers an area of approximately 0.05%, 1.00%, 0.85%, 0.45%, and 0.05% respectively, while in the LL6 chondrite the martensite area coverage is always below 0.05%. Spectra were obtained with a Perkin-Elmer Lambda 900 spectrophotometer with an integrating sphere and normalized at 0.56 μm. The reddening is larger in regions B, C, and D, where martensite covers larger areas.

ables that could alter the spectral contrast. In fact, any of the 2 × 8 mm^2 areas whose spectrum was obtained with the spectrometer is large enough to include many components, and the small variations of Fe-Ni, troilite, and oxide coverage are not

Diapositiva 18



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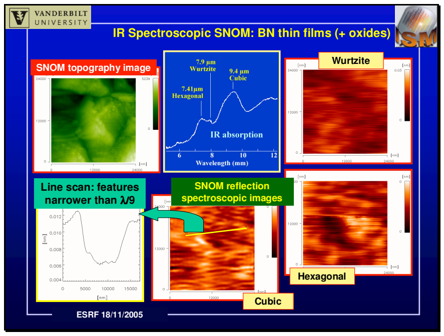

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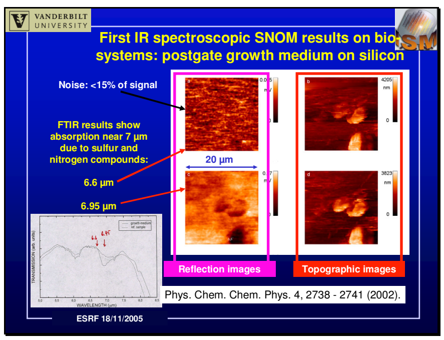

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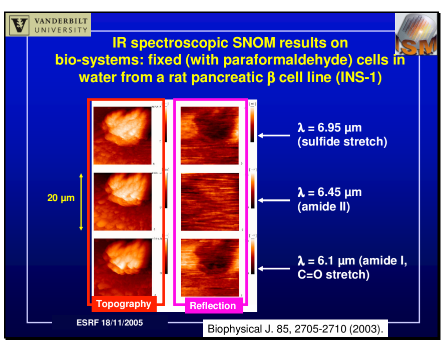

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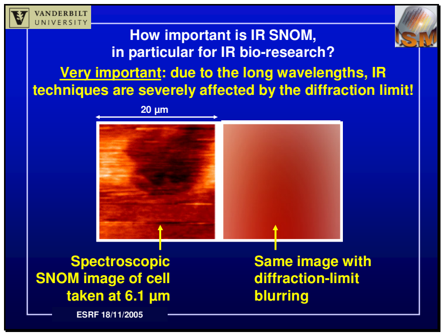

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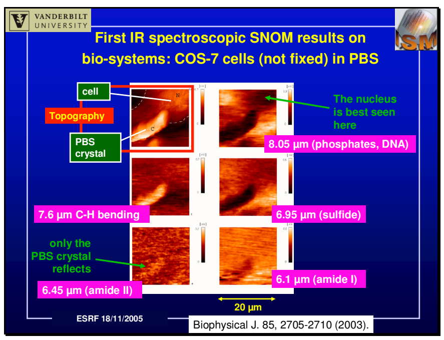

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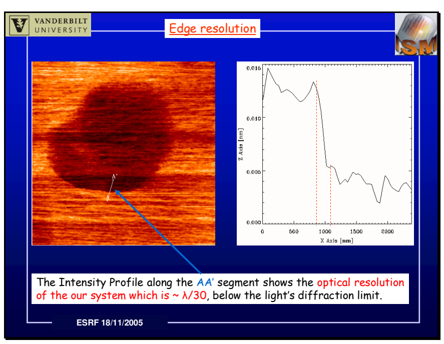

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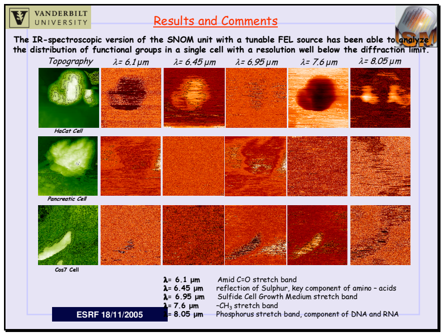

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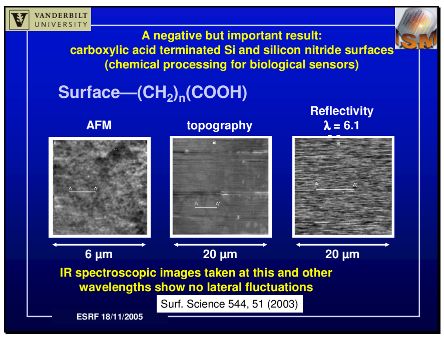

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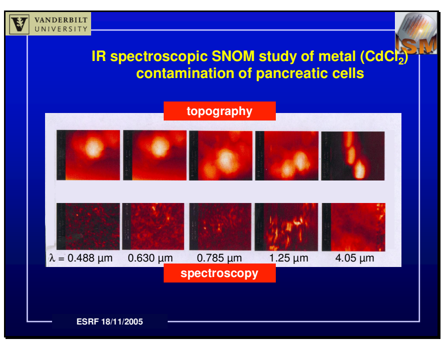

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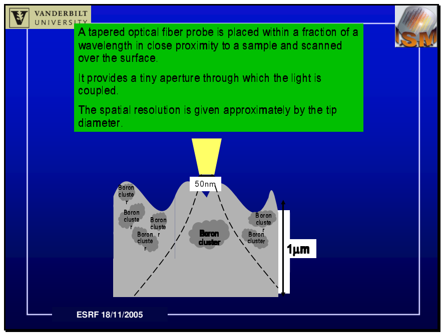

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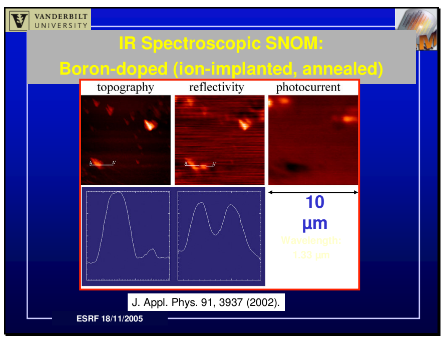

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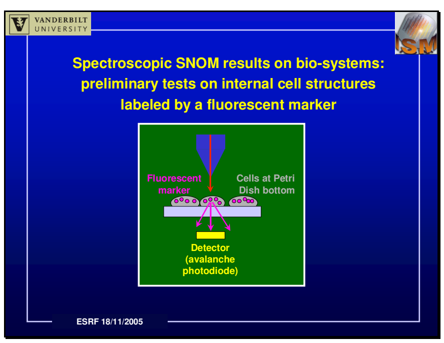

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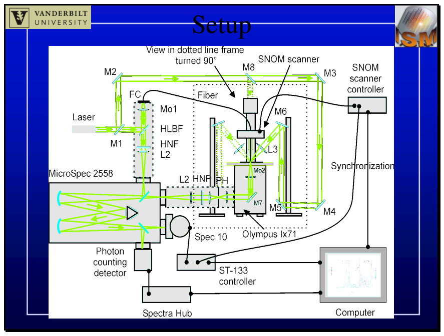

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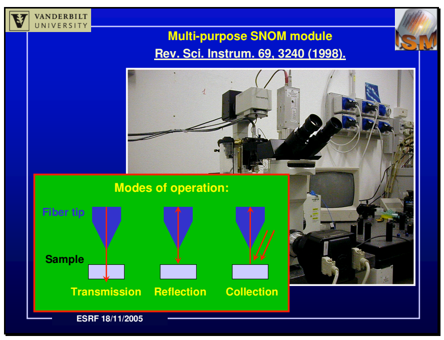

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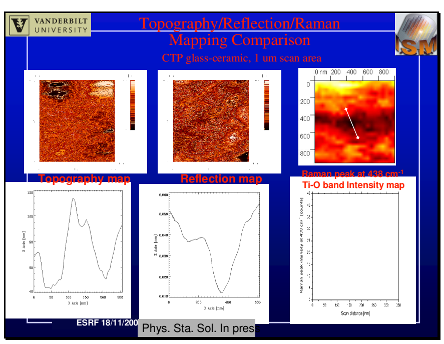

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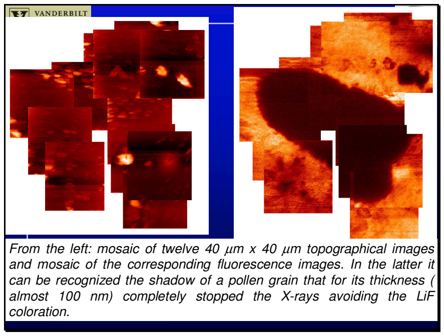

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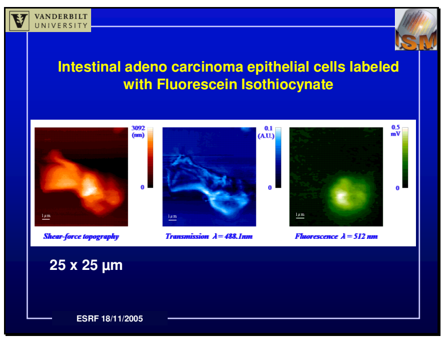

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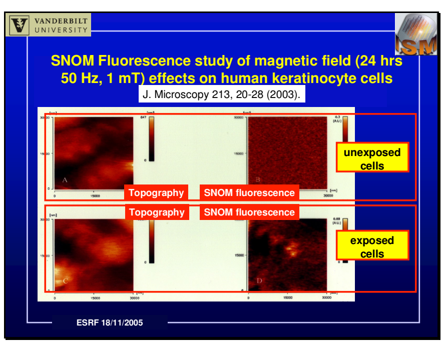

Diapositiva 37

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New types of synchrotron sources:

- Ultrabright storage rings (SLS, new Grenoble project) approaching the diffraction limit
- Self-amplified spontaneous emission (SASE) X-ray free electron lasers
- VUV FEL's (such as CLIO)
- Energy-recovery machines
- Inverse-Compton-scattering table-top sources

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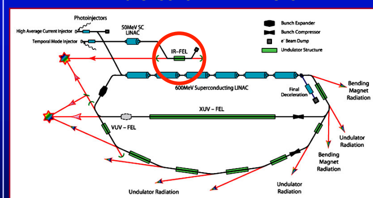
THE "4 GLS" CONCEPT AT DARESBURY



The 4GLS concept involves the use of an energy recovery linac (ERL) in a ring configuration. This is extremely flexible and will allow the easy incorporation of, for example, a single pass XUV-FEL that would allow the generation of coherent pulses of electron laser radiation up to several hundreds of eV in energy.

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Conclusions:

1. SNOM experiments with an FEL are possible and yield resolution levels well beyond the diffraction limit
2. Vibrational spectroscopy SNOM provides chemical information on a microscopic scale
3. Results on biological systems finally open up the possibilty to perform infrared microscopy of cells and internal cell structures
4. IR Spectroscopic SNOM tests were successfully performed in different SNOM modes
5. The experimental performances did not yet reach saturation and substantial improvements can be foreseen
6. In the near future, even better IR sources will further bost the capabilities of IR SNOM

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