



The MacDiarmid Institute
for Advanced Materials and Nanotechnology

A New Zealand Centre of Research Excellence

*Victoria University of Wellington – University of Canterbury
Industrial Research Ltd. – Institute of Geological & Nuclear Sciences – University of Auckland – Massey University – University of Otago*

Videoconference Seminar

Friday 22 November 2002 at 12.45pm

Victoria University of Wellington: Murphy 101

live links to:

University of Canterbury, University of Otago, Massey University and Industrial Research Limited

Proteomes and proteomics -opportunities to interface with materials science

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Following the sequencing of genomes attention is turning to proteomes: the set of proteins that are expressed by genomes. The Human Proteome Project (www.hupo.org) will be the largest project ever attempted in biological science.

Opportunities for interaction with materials science may be in the provision of new technologies for analysis of proteomes and/or use of biomaterials that might result from proteome projects. Proteomics (analysis of proteomes) currently requires mg quantities of tissue and is limited to sampling 1% of the protein set of complex animals and plants. Well-established proteomics approaches include protein separation by electrophoresis and identification by mass spectrometry based peptide sequencing. There is substantial interest in the development of protein chips that use antibodies or other trapping reagents to detect the abundance and structural modifications of large numbers of proteins.

The seminar will included discussion of crystalline bacterial cell wall (S-layer) proteins that have potential for development of biosensors and as uniform grids for deposition of metals [Pum et al. S-layer proteins as basic building blocks in a biomolecular construction kit *Nanotechnology* 11 100-107 (2000); Sleytr et al. Applications of S-layers *FEMS Microbiology Reviews* 20 151-175 (1997)].