

# The institutional perspective on open access



## Do's and don'ts

a university for the **real** world<sup>®</sup>

Presented by: **Professor Tom Cochrane, QUT**



The University of Sydney

The University of Sydney

- **Australia's First University**
  - The University of Sydney, founded in 1850 is Australia's first university, and has an international reputation for **outstanding teaching**, as a centre of **research excellence** and as an active and engaged community leader.
    - Global reputation
    - International networks
    - Commitment to quality
    - Community links





# MONASH University

- Monash University seeks to improve the human condition by advancing knowledge and fostering creativity. It does so through research and education and a commitment to social justice, human rights and a sustainable environment.
- It values:
  - Excellence in research and scholarship
  - Excellence in education
  - Excellence in management
  - International focus
  - Innovation and creativity
  - Diversity, fairness, engagement, integrity, and self-reliance.



- Major institutional aims
  - Flinders aims to be:
    - Known locally, nationally and internationally as a research university
    - Recognised for our leadership position in higher education through establishing courses that are distinctive and relevant, and which meet national and international quality standards
    - Acknowledged by students, graduates, employers, industry, the Australian Indigenous community, the public and our peers for excellence and innovation in teaching and in research
    - Recognised nationally and internationally as an active contributor in the global higher education network .....

# QUT's Vision

- To provide outstanding learning environments and programs that lead to excellent outcomes for graduates, enabling them to work in, and guide a world characterised by increasing change



# QUT's Vision .... cont'd

- To undertake high-impact research and development in selected areas, at the highest international standards, reinforcing our applied emphasis and securing significant commercial and practical outcomes; and



# QUT's Vision .... cont'd

- To strengthen and extend our strategic partnerships with professional and broader communities to reflect both our academic ambitions and our civic responsibility



# The core questions

- What do teachers do to be recognized, how well does it work, and how does it get enabled?



# University teaching ...

- Long history of debate over status, whether in regional Australia or at Harvard
- Difference between institutional perspectives and concerns and individual perception of “on the ground” realities
- Nevertheless significant progress as a result of government investment, institutionally driven concern, and increasingly audible student voices



# The core questions

- Similarly, what do researchers do to be recognized, how well does it work, and how does it get enabled?

# University research

- Publish or perish
- The metrics of quality and impact
- The congruence of institutional and individual motivation
- The importance of integrity and certification and the bestowing of prestige
- The importance of audience (size and quality)

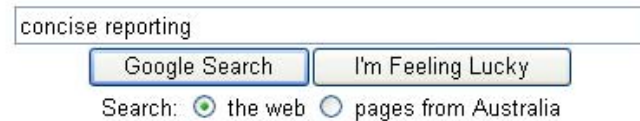


# The core questions then ...

- What do teachers do to be recognized, how well does it work, and how does it get enabled?
- Similarly, what do researchers do to be recognized, how well does it work, and how does it get enabled?

# Motivating researchers to self-archive

- We demonstrate how IR records are heavily weighted by Google's ranking algorithm.
- This simple two word search produced 7.3 million hits - but the QUT eprint record containing these words was at the top of the list
- This show how the IR will make their work more visible

A screenshot of a Google search results page for the query 'Concise Reporting'. The page shows the search bar with the query, the number of results (10 of about 7,390,000), and the search time (0.25 seconds). The top result is from the QUT ePrints Archive, titled 'Concise reporting in Australia: Has the ...'. A blue arrow points from the top result in the list to a callout box on the right side of the page. The callout box contains the text: 'QUT ePrint record No 1 (7.3 million hits)'. Other search results are visible below, including 'CableFAX Daily' and 'FY2006 Library Services & Technology Ac...'.

**QUT ePrint record No 1 (7.3 million hits)**

# A QUT ePrints record...

“Open Access” to the author’s final draft version



Linked access to the published version



QUT

## Modification of fibrous silicates surfaces with organic derivatives: An infrared spectroscopic study

Ray L. Frost\*, Efraim Mendelovici<sup>†</sup>

Queensland University of Technology, Brisbane, Australia

Received 19 May 2005; accepted 6 July 2005

Available online 9 August 2005

### Abstract

This contribution explores the interaction of the fibrous silicates, pyrogenic silica, sepiolite and chrysotile with a wide range of organic agents. Infrared spectroscopy (IR) methods are essential for the characterization of acid surfaces and for the investigation of the kind of bonds formed between the surface of these silicates and the organic moieties. Thus, when sepiolite or pyrogenic silica are treated, e.g., with polyurethanes, alcohols, isocyanates, amines or pyridines, specific Si-NH-C or Si-O-C bonds are derived from the linkage of the differently located OH groups in these fibrous silicates with the organic moieties. On the other hand, more stable, covalent Si-O-Si-C bondings are formed when the fibrous silicates, especially chrysotile, are reacted with heterofunctional silylating agents like chlorosilanes or siloxanes carrying, silyl, alkoxyl or acyl groups. Such reactions may occur in the presence or absence of HCl. An absorption band at 960  $\text{cm}^{-1}$ —which was assigned to Si-OH groups—is detected only in the presence of HCl. The evolution of this band is related to the degree of grafting of the organic radicals with the silanol groups of the silicates. HCl-generated silanol groups are the main bridges for the coupling of organosilyl groups on chrysotile and other silicates by covalent bonding, leading the way to the preparation of interesting new materials, including fibrous sheet polymers. © 2005 Elsevier Inc. All rights reserved.

**Keywords:** Nanotechnology; Nanotechnology; Organosilanes; Modification of clay surfaces; Infrared spectroscopy; Pyrogenic silica; Chrysotile

### 1. Introduction

Organically modified silicates have selective applications in many areas and have thus called the attention of a number of investigators in the last three or four decades. Organic derivatives of fibrous silicates like pyrogenic silica (also known as stibipilite), sepiolite and chrysotile deserve a special chapter because of their interesting applications. As infrared spectroscopy has been an important tool to study and characterize the structure of such fibrous organomineral products, we undertake here a review of works done in this field.

Two kinds of organic treatments of these fibrous silicates will be considered. Treatments with organic agents are based mostly on carbon, nitrogen, arsenic, etc. (e.g., amines, isocyanates, alcohols, polyurethanes, organic acids) and with

organosilicon compounds, based mostly on silicon and carbon (e.g., siloxanes, chlorosilanes, alkoxy silanes, etc.). The presence and absence of HCl in the mentioned treatments will also be discussed. Acid treatments per se may result in solids with increased surface areas, high porosity and acid centers. Such acid-treated silicates may find applications in catalysis, as bleaching agents, etc. Covalent bonding (and/or H bonding) between the zeolite water/OH-functional groups on fibrous silicates and organic derivatives is emphasized in this review. However, it is known that many silicate minerals might carry a negative charge (as a result of isomorphous substitution) and can have siloxane cavities. These will provide attractive adsorption centers especially when small polar organic derivatives are considered.

Whilst it is not strictly correct to describe the fixation of different organic derivatives on silicate surfaces as if it was solely covalent in nature and disregard the possibility of ionic or dipole-ion fixation, it does provide the basis for a big picture point of view.

\* Corresponding author. Tel.: +61 7 3864 1864.  
E-mail address: r.frost@qut.edu.au (R.L. Frost).  
<sup>†</sup> Emeritus Investigator, IVC, Canada.



## ePrints mean impact

### Research

QUT has led the charge for open and rapid access to academic papers in Australia with the introduction of ePrints, and it's proving highly successful with one university academic's papers attracting more than 25,000 hits.

Professor Ray Frost, from the School of Physical and Chemical Sciences, has recorded phenomenal interest in his research with people worldwide downloading his research papers at an average rate of more than 2080 a month.

QUT ePrints provides open access to electronic copies of peer-reviewed research journal articles and conference papers, Professor Frost said.

"It gives everybody worldwide access to papers or research involving QUT academics," he said.

"QUT ePrints is also important because the database shows with whom

QUT academics have collaborations both nationally and internationally.

"The best thing about it is that people can download papers free of charge. I no longer have to package up hard copies of papers and send them in the post."

QUT's e-Research access coordinator, Paula Callan, said universities around the world were beginning to adopt similar repositories, but QUT was one of the first in Australia.

"QUT currently has the highest deposit rate in terms of the proportion of annual research publication output being deposited by the authors in an open access repository," she said.

Ms Callan said the university was always looking for ways to improve the service and in the coming months would be migrating QUT ePrints to new, more extensible software.

QUT ePrints is available at [www.eprints.qut.edu.au](http://www.eprints.qut.edu.au). For details, email [eprints@qut.edu.au](mailto:eprints@qut.edu.au).

## Article about Professor Frost's downloads published in QUT's Campus Newspaper .....

## ... was picked up by journalists from National Newspaper



The report has been seized upon by open access lobbyists such as Stevan Harnad of the American Scientist Open Access Forum, who used its conclusions to urge Harvard University to adopt a policy requiring academics to put their work in open access repositories.

Queensland University of Technology is believed to be the first institution to have adopted such a policy.

Ray Frost, from QUT's school of physical and chemical sciences, said the ePrints repository gave him a new global readership. His papers were downloaded on average 2080 times a month.

# Further issues

- Sector and institutional history in “learning object” management
- The institutional take on the green and gold debate (individual initiative v coordinated action)
- Publishing risk and the give away monograph?
- Prestige and the metrics of trust





