

Curriculum Vitae

THE AUSTRALIAN NATIONAL UNIVERSITY

Professor Vincent S. J. CRAIG
Department of Applied Mathematics
Research School of Physical Sciences and Engineering

Date of Birth: 6th January 1967

Academic Qualifications:

1993 BSc (First Class Honours) ANU (Department of Chemistry)
1997 PhD ANU (Department of Chemistry and Department of Applied Mathematics)

PhD thesis title: *"Application of the Light Lever Technique to the Direct Measurement of Colloidal Forces"*

Main Research Interests:

I am interested in static and dynamic events and processes at interfaces. I am most active in Bubble Growth, Dissolution and Coalescence, Specific ion effects, Surface Forces and Surfactant and Polymer Adsorption.

Present Appointment with the ANU

Professor January 5th 2012

Previous Appointments

Department Head Jan 2008- Jan 2012
Associate Professor Feb 2007- Jan 2012
ARC Future Fellowship December 2009-December 2013
ARC Research Fellow: February 2002-February 2007
ARC Postdoctoral Fellow: February 1999- February 2002

Membership of Professional Associations

Australasian Colloid and Interface Society (Director and Treasurer 2013-present)
President of the International Nanobubbles Society (2014- present)
International Association of Colloid and Interface Scientists
Royal Society of Chemistry

Academic Awards and Distinctions:

2009 Australian Research Council Future Fellowship
2001 Australian Research Council Research Fellowship
1998 Australian Research Council Postdoctoral Fellowship
1993 The Channel Ten Young Achiever of the Year
1993 The Pacific Power Sci. and Tech. Young Achiever of the Year
1993 Australian Postgraduate Research Award (APRA)
1992 RACI Young Chemists Achievement Award

Current Research Interests

- Nanobubbles
 - Surface and Bulk
 - Stability
 - Applications

- Direct Measurement of Surface Forces
 - Forces between mineral-like surfaces
 - The influence of roughness on surface forces

- Adsorption Behaviour of Surfactant and Polymer Systems
 - Adsorption kinetics
 - Surface Conformation
 - Surface rearrangements, structure and kinetics

- Bubble Coalescence
 - Specific-ion effects in bubble coalescence

- Specific Ion and Hofmeister effects

Publications

Book Chapters

Specific Ion effects at the air-water interface – experimental studies

V. S. J Craig and C. L. Henry Chapter 7 in Specific Ion effects, Ed Werner Kunz; World Scientific Publishing (2010) ISBN 978-981-4271-57-8

Nanobubbles at Hydrophobic surfaces

Vincent .S. J. Craig, Xuehua Zhang and Jun Hu in Drops and Bubbles in Contact with Solid Surfaces, CRC Press in the book series "Progress in Colloid and Interface Science" Edited by M. Ferrari, L. Liggieri. R Miller. (2012) ISBN 9781466575455

On the Surface Tension of Electrolyte Solutions

Vincent S. J. Craig, Jian Cui, Thomas G. Brazier in Aqua Incognita Galileo 400 years on. Edited by Pierandrea Lo Nostro (2014) ISBN: 9781925138214

Refereed articles in International Journals

Citations 2796 @ November 2012 (2621 without counting self citations),

H Factor 26; M factor 1.73; For verification check Researcher ID A-6607-2008

1. High Yield Stress Associated with Capillary Attraction between Alumina Surfaces in the Presence of Low Molecular Weight Dicarboxylic Acids. E-Jen Teh, Yee-Kwong Leong, Yinong Liu, **Vincent S. J. Craig**, Rick B Walsh, Shaun Howard, Thomas Becker, *Langmuir* **26 (5)** 3067–3076 (2010) DOI: 10.1021/la902976n
2. The link between ion specific bubble coalescence and Hofmeister effects Christine L. Henry and **V. S. J. Craig**, *Langmuir* **26 (9)** 6478–6483 (2010) DOI: 10.1021/la9039495

3. Macroscopically Flat and Smooth Superhydrophobic Surfaces: Heating Induced Wetting Transitions up to the Leidenfrost Temperature. Guangming Liu and **Vincent S. J. Craig**, *Faraday Discussions* **146** 141-151 (2010) DOI: 10.1039/B924965F
4. Swelling and Collapse of an Adsorbed pH-Responsive Film-Forming Microgel Measured by Optical Reflectometry and QCM. Shaun C. Howard, **V. S. J. Craig**, Paul A. FitzGerald and Erica J. Wanless, *Langmuir* **26(18)** 14615–14623 (2010)
5. Very small bubbles at surfaces – The nanobubble puzzle **Vincent S. J. Craig**, *Soft Matter* **7 (1)** 40-48 (2011) DOI: 10.1039/c0sm00558d
6. Adsorption of dispersants at a polyester resin-alkane interface. Shannon M. Notley, **Vincent S. J. Craig**, Andrew Fogden, Drew R Evans. *Colloids and Surfaces A* **377** 318-324 (2011) DOI: 10.1016/j.colsurfa.2011.01.022
7. Water Droplet Motion Control on Superhydrophobic Surfaces: Exploiting the Wenzel to Cassie Transition. Guangming Liu, Lan Fu, Andrei V. Rode, **Vincent S. J. Craig**, *Langmuir* **27(6)** 2595-2600 (2011) DOI: 10.1021/la104669k
8. Reply to Comment on Water Droplet Motion Control on Superhydrophobic Surfaces: Exploiting the Wenzel to Cassie Transition. Guangming Liu, Lan Fu, Andrei V. Rode, **Vincent S. J. Craig**, *Langmuir* **27(22)** 13962-13963 (2011)
9. Do hydration forces play a role in thin film drainage and rupture observed in electrolyte solutions. *Current Opinion in Colloid and Interface Science* **16** 597-600 (2011) **Vincent S. J. Craig**, DOI:10.1016/j.cocis.2011.04.003
10. Insights into Ion Specificity in Water-Methanol Mixtures via Reentrant Behavior of Polymer. Tao Wang, Guangming Liu, Guangzhou Zhang, **Vincent S. J. Craig** *Langmuir* **28(3)** 1893-1899 (2012) DOI:10.1021/la203979d
11. Direct Measurement of van der Waals and Diffuse Double Layer Forces between Titanium Dioxide Surfaces Produced by atomic Layer Deposition. Rick B Walsh, Andrew Nelson, William M Skinner, **Vincent S. J. Craig**, *Journal of Physical Chemistry C* **116(14)** 7838-7847 (2012) DOI:10.1021/jp300533m
12. A Deliberation on Nanobubbles at Surfaces and in Bulk. James R. T. Seddon, Detlef Lohse, William A. Ducker, **Vincent S. J. Craig** *Chem Phys Chem* **13(8)** 2179-2187 (2012) DOI:10.1002/cphc.201100900
13. Model Surfaces Produced by Atomic Layer Deposition. Rick B Walsh, Andrew Nelson, William M Skinner, Guangming Liu, **Vincent S. J. Craig**, *Chemistry Letters* **41(10)** 1247-1249 (2012) DOI: 10.1246/cl.2012.1247
14. Adsorption isotherms and structure of cationic surfactants adsorbed on mineral oxide surfaces prepared by Atomic Layer Deposition. Thipvaree Wangchareansak, **Vincent S. J. Craig**, Shannon Notley *Langmuir* **29(48)** 14748-14755 (2013) DOI 10.1021/la403439r

15. Surface Force Measurements between Titanium Dioxide Surfaces Prepared by Atomic Layer Deposition in Electrolyte Solutions Reveal Non-DLVO Interactions: Influence of Water and Argon Plasma. Rick B Walsh, Drew Evans and **Vincent S. J. Craig**, *Langmuir* (2014) DOI 10.1021/la5000205
16. Surface Forces between titanium dioxide surfaces in the presence of cationic surfactant as a function of surfactant concentration, electrolyte concentration and pH. Rick B Walsh, Bo Wu, Shaun C. Howard and **Vincent S. J. Craig** *Langmuir* (2014) DOI 10.1021/la500298u
17. Superhydrophobic and Superoleophilic Boron Nitride Nanotube-Coated Stainless Steel Meshes for Oil and Water Separation. Yuanlie Yu , Hua Chen , Yun Liu , **Vincent Craig** , Lu Hua Li , and Ying Chen *Advanced Materials Interfaces* (2014), 1, 1300002
18. Stiff Chains Inhibit Protein and Flexible Chains Promote Protein Adsorption to Polyelectrolyte Multilayers. Bo Wu, Guangming Liu, Guangzhao Zhang and **Vincent S. J. Craig** *Soft Matter* DOI: 10.1039/c4sm00413b (2014)
19. Surface Forces: Surface Roughness in Theory and Experiment. Drew F. Parson, Rick B Walsh and **Vincent S. J. Craig**, *J. Chem. Phys.* 140, 164701 (2014); doi: 10.1063/1.4871412
20. Coadsorption of low molecular weight aromatic and aliphatic alcohols and acids with the cationic surfactant, CTAB, on silica surfaces. Thipvaree Wangchareansak, Max A. Keniry, Guangming Liu, **Vincent S. J. Craig** *Langmuir*, (2014) dx.doi.org/10.1021/la501197m
21. Interfacial Nanobubbles Are Leaky: Permeability of the Gas/Water Interface. Sean R German, Xi Wu, Hongjie An, **Vincent S. J. Craig**, Tony L Mega, Xuehua Zhang, *ACS Nano* (2014) DOI 10.1021/nn5016049
22. Laser Actuation of Cantilevers for Picometre Amplitude Dynamic Force Microscopy. Drew R. Evans, Ponlawat Tayati, Hongjie An, Ping Koy Lam, **Vincent S. J. Craig**, Tim J. Senden, *Scientific Reports* **4**, 5567, (2014) DOI: 10.1038/srep05567
23. Porous Carbon Nanotube/Polyvinylidene Fluoride Composite Material: Superhydrophobicity/Superoleophilicity and Tunability of Electrical Conductivity. Yuanlie Yu, Hua Chen, Yun Liu, Vincent S.J. Craig, Lu Hua Li, Ying Chen and Antonio Tricoli, *Polymer* **55(22)** 5616-5622 (2014)
24. Cation-Specific Conformational Behavior of Polyelectrolyte Brushes: From Aqueous to Nonaqueous Solvent. Wang, Tao; Long, Yunchao; Liu, Lvdan; Wang, Xiaowen; Craig, Vincent; Zhang, Guan gzhao; Liu, Guangming, *Langmuir* **30(43)** 12850-12859 (2014)