# Biographical Sketch of Jacqueline Krim

**Professional Preparation**

| Institution | Major | Degree | Year |
|---|---|---|---|
| University of Montana, Missoula | Physics | B.A. | 1978 |
| University of Washington, Seattle | Physics | M.S. | 1980 |
| University of Washington, Seattle | Physics | Ph.D. | 1984 |
| Universite d'Aix-Marseille II, France | Physics | postdoctoral | 1985 |

**Appointments**

| | |
|---|---|
| 2011-present | Associate Dean for Research, College of Physical and Mathematical Sciences; College of Sciences (2013), North Carolina State University |
| 1998-present | Professor of Physics, North Carolina State University |
| 1984-1998 | Assistant, Associate (1992), Professor (1996) of Physics, Northeastern University |

**Products**

PRODUCTS MOST CLOSELY RELATED

1. *Friction and energy dissipation mechanisms in adsorbed molecules and molecularly thin films.* J. Krim, Advances in Physics, **61** (3) 155-323, (2012)
2. *"Frictional temperature rise in a sliding physisorbed monolayer of Kr/graphene",* M. Walker, C. Jaye, J. Krim, and M.W. Cole, Journal of Physics: Condensed Matter, **24**, art#424201 (2012)
3. *"Multiscale analysis of liquid lubrication trends from industrial machines to micro-electrical-mechanical systems",* D.W. Brenner, D.L. Irving, A.I. Kingon, and J. Krim, Langmuir **23,** (18): 9253-9257, (2007)
4. *Comparison of Au and Au-Ni alloys as contact materials for MEMS switches*, Zhenyin Yang, DJ Lichtenwalner, A Morris, J Krim and AI Kingon, J. of Microelectromechanical Systems 18, 287-295 (2009)
5. *"Tribo-induced Surface Melting at a Sliding Asperity Contact"* B.D. Dawson, S. M. Lee, and J. Krim, Phys. Rev. Lett. **103**, art# 205502 (2009)

OTHER SIGNIFICANT PRODUCTS

1. " *Surface Science, MEMS and NEMS: Progress and opportunities for surface science research performed on, or by, microdevices.* ", D. Berman and J. Krim, Progress in Surface Science, **88** (2013), Pages 171-211
2. *Temperature dependence of single-asperity friction for a diamond on diamondlike carbon interface*, C.G. Dunkle, I.B. Altfeder, A.A. Voevodin, J. Jones, J. Krim and P. Taborek, J. Applied Phys. **107**, #114903 (2010)
3. *"Friction at the Atomic Scale*", J. Krim, Scientific American, cover story for the October 1996 issue, **275**, 74-80, (1996)
4. *"Scanning Tunneling Microscopy Observation of Self-Affine Fractal Roughness in Ion-Bombarded Film Surfaces",* J. Krim, I. Heyvaert, C. Van Haesendonck and Y. Brunseraede, Physical Review Letters **70**, 57-61, (1993)
5. *"Nanotribology of a Kr Monolayer: A Quartz Crystal Microbalance Study of Atomic-Scale Friction",* J. Krim, D. Solina and R. Chiarello, Physical Review Letters **66**, 181-184, (1991)

**Synergistic activities**

1. Organizer, Southeast Conference for Undergraduate Women in Physics (2010, 2011, 2015)
2. AVS Nanometer Science & Technology Division: Executive Committee (1992-94); (2011-13)
3. Nanotribology Education Program, Society of Tribology and Lubrication Engineers (2012)
4. American Physical Society Member-at-Large, DMP Executive Committee (2002-2005)
5. Sigma Xi Distinguished Lecturer (2001-2003)

**Collaborators & other affiliations**

**1. Collaborators:** Robert P. Behringer (Duke), Donald Brenner (NCSU), Milton W. Cole (Penn.State), MichaelT. Dugger (Sandia), Andrei Gruverman (U. of Nebraska)**,** Judith A. Harrison (U.S. Naval Acad.), Angus I Kingon (Brown U.), Daniel Lichtenwalner (NCSU), Nicol E. McGruer (Northeastern U. ), Robert J. Nemanich (ASU), Christopher Nordquist (Sandia), Gabriel Rebeiz (UC San Diego) Omid Rezvanian (MEMC Corp.), James Rutledge (UC Irvine), Alex Smirnov (NCSU), Tatyana Smirnova (NCSU), Peter Taborek (UC Irvine), Andrey A. Voevodin (Wright Patterson ARL), Kathryn J. Wahl (NRL), Zhenyin Yang (Linear Technol), Mohammed A. Zikry (NCSU)

**2**. **Graduate advisor**
**Ph. D. Thesis Advisor:** Jay G. Dash, title: *Wetting Behavior of Simple Molecular Gases Physically Adsorbed on Au(111)* (University of Washington, Seattle, 1984)
**Postdoctoral Advisor:** Michel Bienfait, Universite D'Aix Marseille II (France)

**3. Thesis advising**
**PostDoctoral Advisees (10 total):** Igor Altfeder, (Wright Patterson Air Force Res. Lab.), Colin Baker, (Naval Res. Lab.), Jonathan Bender (Afton Corp.). Brian Borovsky (St. Olaf College), Richard Chromick (McGilll Univ.), Kurt Ketola (Raytheon Elec.), Sang Min Lee (Applied Materials, Inc.), Brian Mason (Stanford Research Systems), Klaus Mecke (U. of Wuppertal), Nimel Theodore (NRL)

**Graduate Students Advised (25 total)** : Eric Watts (Boeing, El Segundo, CA), Ronald Chiarello (C.E.O., Jetalon Solutions), Vania Panella (Author, Perugia, Italy), George Palasantzas (Univ. Of Groningen, The Netherlands), Christopher Daly (Hewlett Packard, Boston, MA), Chihong Mak (Linear Manufacturing, Hong Kong), Angela J. Dayo (Freelance writer), Silvina Tomassone, (Rutgers University), Mohamed Abdelamaksoud (Cairo University), Steve Winder (employment status unknown); Tonya Coffey (Appalachian State University, Boone, NC), Cherno Jaye (Brookhaven National Lab.), Matthew Highland (Argonne National Lab.), Worakarn Neeyakorn (King Mongkut's Institute of Technology Ladkrabang (KMITL), Bangkok, Thailand), Manju Varma (Qualcomm Corp.) Matthew Walker (Northrop Grumman, Baltimore, MD), Brendan Miller (Chevron Corp., San Francisco, CA), Chris Brown (Sail Venture Partners), Benjamin Dawson (Western Digital, Irvine, CA), Liming Pan(Northern Trust Company, Chicago, IL), D.Adam Hook (North Carolina State University, Raleigh, NC), Iyam Lynch (Corinthian Opthalmic, Boone, NC), Diana Berman (Argonne National Lab.), Zijian Liu (Ph. D. in progress), Keeley Stevens (Ph.D.in progress), Zachary Fredricks (Ph.D. in progress)

**Undergraduate Students Advised (36 total)**: Frederick Kustin, Robert Kaiser, Adam Connell, Aki Suwa, Wada Allnasrallah, Michael Rose, Hymen Carrell, Eric Lada, Christine Lin, Lucas Wagner, Susan Hunter, Alexander Mayer, Kevin Rasch, Christina Hammock, David Johnson, D. Adam Hook, Ramatoulie Bah, Meagan Miller, Daryl Purcell, Jessica McNutt, Kyle Barefoot, Brian M. Vlastakis, Davin Frankosky, Joseph Browning, Omar Parker, Adrian Hutchinson, Stephanie Mills, Troy Bradshaw, Christopher Shumake, Jennifer Patton, Edward Stevens, Jonathan Pike, Steven Corely, Benjamin Keller, Rebecca Rosenfeld, Dustin Leininger