Stanford

Anders R. Nilsson

Professor of Photon Science, Emeritus

SLAC National Accelerator Laboratory

Bio

BIO

Anders Nilsson interests covers the application of synchrotron radiation to studies of surfaces and in liquids with a focus on studies catalytic processes in fuel cells, photoelectrochemical decomposition of water, CO2 reduction, chemical bonding on surfaces, structure of liquid water and aqueous solutions, interfacial processes of relevance to molecular environmental science and ultrafast processes on surfaces and in water.

ACADEMIC APPOINTMENTS

- Emeritus Faculty, Acad Council, SLAC National Accelerator Laboratory

HONORS AND AWARDS

- The Liljevalls Award for Young Scientist, Uppsala University (1988)
- Ångström Award for Outstanding PhD thesis, Uppsala University (1990)
- The Lindbomska Award for Outstanding PhD thesis, Royal Academy of Science, Stockholm, Sweden (1991)
- The Royal Oscars Award for Important Contributions in Science, Uppsala University (1994)
- The Shirley Award for Excellent Research using Soft X-rays, Lawrence Berkeley National Laboratory (1998)
- Fellow of the Institute of Physics, London, UK (2004)
- Special Award on the article on water as one of the top 10 breakthroughs of the year, Foundation for Strategic Research in Sweden (2005)
- Humboldt Senior Research Award, Alexander von Humboldt-Stiftung/Foundation, Germany (2009)

LINKS

- The Nilsson Research Group: http://ssrl.slac.stanford.edu/nilssongroup/

Publications

PUBLICATIONS

- **On the chemical state of Co oxide electrocatalysts during alkaline water splitting.** *Physical chemistry chemical physics*
  Friebel, D., Bajdich, M., Yeo, B. S., Louie, M. W., Miller, D. J., Sanchez Casalongue, H., Mbuga, F., Weng, T., Nordlund, D., Sokaras, D., Alonso-Mori, R., Bell, A. T., Nilsson, et al
  2013; 15 (40): 17460-17467

- **On the chemical state of Co oxide electrocatalysts during alkaline water splitting.** *Physical chemistry chemical physics*
  Friebel, D., Bajdich, M., Yeo, B. S., Louie, M. W., Miller, D. J., Sanchez Casalongue, H., Mbuga, F., Weng, T., Nordlund, D., Sokaras, D., Alonso-Mori, R., Bell, A. T., Nilsson, et al
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- **Interlayer Carbon Bond Formation Induced by Hydrogen Adsorption in Few-Layer Supported Graphene** *PHYSICAL REVIEW LETTERS*
  Rajasekaran, S., Abild-Pedersen, F., Ogasawara, H., Nilsson, A., Kaya, S.
  2013; 111 (8)

- **Stability of Pt-Modified Cu(111) in the Presence of Oxygen and Its Implication on the Overall Electronic Structure** *JOURNAL OF PHYSICAL CHEMISTRY C*
  Oberg, H., Anniyev, T., Vojvodic, A., Kaya, S., Ogasawara, H., Friebel, D., Miller, D. J., Nordlund, D., Bergmann, U., Ljungberg, M. P., Abild-Pedersen, F., Nilsson, A., Pettersson, et al
  2013; 117 (32): 16371-16380

- **Unique water-water coordination tailored by a metal surface** *JOURNAL OF CHEMICAL PHYSICS*
  Schiros, T., Andersson, K. J., MacNaughton, J., Gladh, J., Matsuda, A., Ostrom, H., Takahashi, O., Pettersson, L. G., Nilsson, A., Ogasawara, H.
  2013; 138 (23)

- **Resonant inelastic X-ray scattering of liquid water** *JOURNAL OF ELECTRON SPECTROSCOPY AND RELATED PHENOMENA*
  Nilsson, A., Tokushima, T., Horikawa, Y., Harada, Y., Ljungberg, M. P., Shin, S., Pettersson, L. G.
  2013; 188: 84-100

- **Identification of the electronic structure differences between polar isostructural FeO and CoO films by core-level soft x-ray spectroscopy** *PHYSICAL REVIEW B*
  Kaya, S., Anniyev, T., Ogasawara, H., Nilsson, A.
  2013; 87 (20)

- **Selective Ultrafast Probing of Transient Hot Chemisorbed and Precursor States of CO on Ru(0001)** *PHYSICAL REVIEW LETTERS*
  Beye, M., Anniyev, T., Coffee, R., Dell'Angela, M., Foehlisch, A., Gladh, J., Katayama, T., Kaya, S., Krupin, O., Mogelhoj, A., Nilsson, A., Nordlund, D., Norskov, et al
  2013; 110 (18)

- **Ambient-pressure photoelectron spectroscopy for heterogeneous catalysis and electrochemistry** *Conference on Oprando IV - Recent Developments and Future Perspectives in Spectroscopy of Working Catalysts*
  Kaya, S., Ogasawara, H., Naeslund, L., Forsell, J., Casalongue, H. S., Miller, D. J., Nilsson, A.
  ELSEVIER SCIENCE BV.2013: 101–105

- **Solvation structures of protons and hydroxide ions in water.** *journal of chemical physics*
  Chen, C., Huang, C., Waluyo, I., Nordlund, D., Weng, T., Sokaras, D., Weiss, T., Bergmann, U., Pettersson, L. G., Nilsson, A.
  2013; 138 (15): 154506-?

- **Comment on "Using Photoelectron Spectroscopy and Quantum Mechanics to Determine d-Band Energies of Metals for Catalytic Applications"** *JOURNAL OF PHYSICAL CHEMISTRY C*
  Abild-Pedersen, F., Nilsson, A., Norskov, J. K.
  2013; 117 (13): 6914-6915

- **Ultrafast soft X-ray emission spectroscopy of surface adsorbates using an X-ray free electron laser** *JOURNAL OF ELECTRON SPECTROSCOPY AND RELATED PHENOMENA*
  Katayama, T., Anniyev, T., Beye, M., Coffee, R., Dell'Angela, M., Foehlisch, A., Gladh, J., Kaya, S., Krupin, O., Nilsson, A., Nordlund, D., Schlotter, W. F., Sellberg, et al
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- **Real-Time Observation of Surface Bond Breaking with an X-ray Laser** *SCIENCE*
  Dell'Angela, M., Anniyev, T., Beye, M., Coffee, R., Foehlisch, A., Gladh, J., Katayama, T., Kaya, S., Krupin, O., LaRue, J., Mogelhoj, A., Nordlund, D., Norskov, et al
  2013; 339 (6125): 1302-1305

- **Real-time observation of surface bond breaking with an x-ray laser.** *Science*
  Dell'Angela, M., Anniyev, T., Beye, M., Coffee, R., Föhlisch, A., Gladh, J., Katayama, T., Kaya, S., Krupin, O., LaRue, J., Møgelhøj, A., Nordlund, D., Nørskov, et al
  2013; 339 (6125): 1302-1305

- **Benchmark oxygen-oxygen pair-distribution function of ambient water from x-ray diffraction measurements with a wide Q-range** *JOURNAL OF CHEMICAL PHYSICS*
  Skinner, L. B., Huang, C., Schlesinger, D., Pettersson, L. G., Nilsson, A., Benmore, C. J.

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- **X-ray Photoemission and Density Functional Theory Study of the Interaction of Water Vapor with the Fe3O4(001) Surface at Near-Ambient Conditions** *JOURNAL OF PHYSICAL CHEMISTRY C*
  Kendelewicz, T., Kaya, S., Newberg, J. T., Bluhm, H., Mulakaluri, N., Moritz, W., Scheffler, M., Nilsson, A., Pentcheva, R., Brown, G. E.
  2013; 117 (6): 2719-2733
- **Highly Compressed Two-Dimensional Form of Water at Ambient Conditions** *SCIENTIFIC REPORTS*
  Kaya, S., Schlesinger, D., Yamamoto, S., Newberg, J. T., Bluhm, H., Ogasawara, H., Kendelewicz, T., Brown, G. E., Pettersson, L. G., Nilsson, A.
  2013; 3
- **The Electronic States of Rhenium Bipyridyl Electrocatalysts for CO2 Reduction as Revealed by X-ray Absorption Spectroscopy and Computational Quantum Chemistry** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*
  Benson, E. E., Sampson, M. D., Grice, K. A., Smieja, J. M., Froehlich, J. D., Friebel, D., Keith, J. A., Carter, E. A., Nilsson, A., Kubiak, C. P.
  2013; 52 (18): 4841-4844
- **Fluctuations in ambient water** *Annual Meeting of the European-Molecular-Liquids-Group (EMLG)/Japanese-Molecular-Liquids-Group (JMLG)*
  Nilsson, A., Huang, C., Pettersson, L. G.
  ELSEVIER SCIENCE BV.2012: 2–16
- **Electrochemical Oxidation of Size-Selected Pt Nanoparticles Studied Using in Situ High-Energy-Resolution X-ray Absorption Spectroscopy** *ACS CATALYSIS*
  Merte, L. R., Behafarid, F., Miller, D. J., Friebel, D., Cho, S., Mbuga, F., Sokaras, D., Alonso-Mori, R., Weng, T., Nordlund, D., Nilsson, A., Cuenya, B. R.
  2012; 2 (11): 2371-2376
- **Reversible graphene-metal contact through hydrogenation** *PHYSICAL REVIEW B*
  Rajasekaran, S., Kaya, S., Abild-Pedersen, F., Anniyev, T., Yang, F., Stacchiola, D., Ogasawara, H., Nilsson, A.
  2012; 86 (7)
- **Balance of Nanostructure and Bimetallic Interactions in Pt Model Fuel Cell Catalysts: In Situ XAS and DFT Study** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
  Friebel, D., Viswanathan, V., Miller, D. J., Anniyev, T., Ogasawara, H., Larsen, A. H., O'Grady, C. P., Norskov, J. K., Nilsson, A.
  2012; 134 (23): 9664-9671
- **The soft x-ray instrument for materials studies at the linac coherent light source x-ray free-electron laser** *REVIEW OF SCIENTIFIC INSTRUMENTS*
  Schlotter, W. F., Turner, J. J., Rowen, M., Heimann, P., Holmes, M., Krupin, O., Messerschmidt, M., Moeller, S., Krzywinski, J., Soufli, R., Fernandez-Perea, M., Kelez, N., Lee, et al
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- **Microscopic probing of the size dependence in hydrophobic solvation** *JOURNAL OF CHEMICAL PHYSICS*
  Huang, N., Schlesinger, D., Nordlund, D., Huang, C., Tyliszczak, T., Weiss, T. M., Acremann, Y., Pettersson, L. G., Nilsson, A.
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- **Polarization dependent resonant x-ray emission spectroscopy of D2O and H2O water: Assignment of the local molecular orbital symmetry** *JOURNAL OF CHEMICAL PHYSICS*
  Tokushima, T., Horikawa, Y., Arai, H., Harada, Y., Takahashi, O., Pettersson, L. G., Nilsson, A., Shin, S.
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- **X-ray emission spectroscopy and density functional study of CO/Fe(100)** *JOURNAL OF CHEMICAL PHYSICS*
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  2012; 136 (3)
- **Probing substrate effects in the carbon-projected band structure of graphene on Pt(111) through resonant inelastic x-ray scattering** *PHYSICAL REVIEW B*
  Rajasekaran, S., Kaya, S., Anniyev, T., Ogasawara, H., Nilsson, A.
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- **Tuning the Metal-Adsorbate Chemical Bond through the Ligand Effect on Platinum Subsurface Alloys** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*
  Anniyev, T., Kaya, S., Rajasekaran, S., Ogasawara, H., Nordlund, D., Nilsson, A.

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- **Ab Initio van der Waals Interactions in Simulations of Water Alter Structure from Mainly Tetrahedral to High-Density-Like** *JOURNAL OF PHYSICAL CHEMISTRY B*
  Mogelhoj, A., Kelkkanen, A. K., Wikfedt, K. T., Schiotz, J., Mortensen, J. J., Pettersson, L. G., Lundqvist, B. I., Jacobsen, K. W., Nilsson, A., Norskov, J. K.
  2011; 115 (48): 14149-14160
- **Perspective on the structure of liquid water** *CHEMICAL PHYSICS*
  Nilsson, A., Pettersson, L. G.
  2011; 389 (1-3): 1-34
- **Oxidation of Pt(111) under Near-Ambient Conditions** *PHYSICAL REVIEW LETTERS*
  Miller, D. J., Oberg, H., Kaya, S., Casalongue, H. S., Friebel, D., Anniyev, T., Ogasawara, H., Bluhm, H., Pettersson, L. G., Nilsson, A.
  2011; 107 (19)
- **X-ray Raman scattering provides evidence for interfacial acetonitrile-water dipole interactions in aqueous solutions** *JOURNAL OF CHEMICAL PHYSICS*
  Huang, N., Nordlund, D., Huang, C., Bergmann, U., Weiss, T. M., Pettersson, L. G., Nilsson, A.
  2011; 135 (16)
- **Increased fraction of low-density structures in aqueous solutions of fluoride** *JOURNAL OF CHEMICAL PHYSICS*
  Waluyo, I., Huang, C., Nordlund, D., Weiss, T. M., Pettersson, L. G., Nilsson, A.
  2011; 134 (22)
- **Enhanced small-angle scattering connected to the Widom line in simulations of supercooled water** *JOURNAL OF CHEMICAL PHYSICS*
  Wikfeldt, K. T., Huang, C., Nilsson, A., Pettersson, L. G.
  2011; 134 (21)
- **Hydrogen Spillover in Pt-Single-Walled Carbon Nanotube Composites: Formation of Stable C-H Bonds** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
  Bhowmick, R., Rajasekaran, S., Friebel, D., Beasley, C., Jiao, L., Ogasawara, H., Dai, H., Clemens, B., Nilsson, A.
  2011; 133 (14): 5580-5586
- **The structure of water in the hydration shell of cations from x-ray Raman and small angle x-ray scattering measurements** *JOURNAL OF CHEMICAL PHYSICS*
  Waluyo, I., Huang, C., Nordlund, D., Bergmann, U., Weiss, T. M., Pettersson, L. G., Nilsson, A.
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- **Vibrational interference effects in x-ray emission of a model water dimer: Implications for the interpretation of the liquid spectrum** *JOURNAL OF CHEMICAL PHYSICS*
  Ljungberg, M. P., Pettersson, L. G., Nilsson, A.
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- **Formation of hydroxyl and water layers on MgO films studied with ambient pressure XPS** *SURFACE SCIENCE*
  Newberg, J. T., Starr, D. E., Yamamoto, S., Kaya, S., Kendelewicz, T., Mysak, E. R., Porsgaard, S., Salmeron, M. B., Brown, G. E., Nilsson, A., Bluhm, H.
  2011; 605 (1-2): 89-94
- **Degradation of Bimetallic Model Electrocatalysts: An In Situ X-Ray Absorption Spectroscopy Study** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*
  Friebel, D., Miller, D. J., Nordlund, D., Ogasawara, H., Nilsson, A.
  2011; 50 (43): 10190-10192
- **Wide-angle X-ray diffraction and molecular dynamics study of medium-range order in ambient and hot water** *PHYSICAL CHEMISTRY CHEMICAL PHYSICS*
  Huang, C., Wikfeldt, K. T., Nordlund, D., Bergmann, U., McQueen, T., Sellberg, J., Pettersson, L. G., Nilsson, A.
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- **Spatially inhomogeneous bimodal inherent structure of simulated liquid water** *PHYSICAL CHEMISTRY CHEMICAL PHYSICS*
  Wikfeldt, K. T., Nilsson, A., Pettersson, L. G.

2011; 13 (44): 19918-19924

- **In situ X-ray probing reveals fingerprints of surface platinum oxide** *PHYSICAL CHEMISTRY CHEMICAL PHYSICS*
  Friebel, D., Miller, D. J., O'Grady, C. P., Anniyev, T., Bargar, J., Bergmann, U., Ogasawara, H., Wikfeldt, K. T., Pettersson, L. G., Nilsson, A.
  2011; 13 (1): 262-266
- **Low O-2 dissociation barrier on Pt(111) due to adsorbate-adsorbate interactions** *JOURNAL OF CHEMICAL PHYSICS*
  Miller, D. J., Oberg, H., Naslund, L., Anniyev, T., Ogasawara, H., Pettersson, L. G., Nilsson, A.
  2010; 133 (22)
- **Semiclassical description of nuclear dynamics in x-ray emission of water** *PHYSICAL REVIEW B*
  Ljungberg, M. P., Nilsson, A., Pettersson, L. G.
  2010; 82 (24)
- **Direct Interaction of Water Ice with Hydrophobic Methyl-Terminated Si(111)** *JOURNAL OF PHYSICAL CHEMISTRY C*
  Waluyo, I., Ogasawara, H., Kawai, M., Nilsson, A., Yamada, T.
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- **X-RAY SPECTROSCOPY Transferring electrons to water (vol 2, pg 800, 2010)** *NATURE CHEMISTRY*
  Nilsson, A.
  2010; 2 (11): 913-913
- **Increasing correlation length in bulk supercooled H2O, D2O, and NaCl solution determined from small angle x-ray scattering** *JOURNAL OF CHEMICAL PHYSICS*
  Huang, C., Weiss, T. M., Nordlund, D., Wikfeldt, K. T., Pettersson, L. G., Nilsson, A.
  2010; 133 (13)
- **Transferring electrons to water (vol 2, pg 800, 2010)** *NATURE CHEMISTRY*
  Nilsson, A.
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- **X-RAY SPECTROSCOPY Transferring electrons to water** *NATURE CHEMISTRY*
  Nilsson, A.
  2010; 2 (10): 800-802
- **Cooperativity in Surface Bonding and Hydrogen Bonding of Water and Hydroxyl at Metal Surfaces** *JOURNAL OF PHYSICAL CHEMISTRY C*
  Schiros, T., Ogasawara, H., Naslund, L., Andersson, K. J., Ren, J., Meng, S., Karlberg, G. S., Odelius, M., Nilsson, A., Pettersson, L. G.
  2010; 114 (22): 10240-10248
- **Lattice-strain control of the activity in dealloyed core-shell fuel cell catalysts** *NATURE CHEMISTRY*
  Strasser, P., Koh, S., Anniyev, T., Greeley, J., More, K., Yu, C., Liu, Z., Kaya, S., Nordlund, D., Ogasawara, H., Toney, M. F., Nilsson, A.
  2010; 2 (6): 454-460
- **Reply to Soper et al.: Fluctuations in water around a bimodal distribution of local hydrogen-bonded structural motifs** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Huang, C., Wikfeldt, K. T., Tokushima, T., Nordlund, D., Harada, Y., Bergmann, U., Niebuhr, M., Weiss, T. M., Horikawa, Y., Leetmaa, M., Ljungberg, M. P., Takahashi, O., Lenz, et al
  2010; 107 (12): E45-E45
- **Oxygen-oxygen correlations in liquid water: Addressing the discrepancy between diffraction and extended x-ray absorption fine-structure using a novel multiple-data set fitting technique** *JOURNAL OF CHEMICAL PHYSICS*
  Wikfeldt, K. T., Leetmaa, M., Mace, A., Nilsson, A., Pettersson, L. G.
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- **The role of substrate electrons in the wetting of a metal surface** *JOURNAL OF CHEMICAL PHYSICS*
  Schiros, T., Takahashi, O., Andersson, K. J., Ostrom, H., Pettersson, L. G., Nilsson, A., Ogasawara, H.
  2010; 132 (9)
- **Preface to special issue on inner-shell spectroscopies applied to water and hydrogen bonds Preface** *JOURNAL OF ELECTRON SPECTROSCOPY AND RELATED PHENOMENA*
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- **Theoretical approximations to X-ray absorption spectroscopy of liquid water and ice** *JOURNAL OF ELECTRON SPECTROSCOPY AND RELATED PHENOMENA*
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- **Chemical bonding of water to metal surfaces studied with core-level spectroscopies** *JOURNAL OF ELECTRON SPECTROSCOPY AND RELATED PHENOMENA*
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- **High resolution X-ray emission spectroscopy of water and its assignment based on two structural motifs** *JOURNAL OF ELECTRON SPECTROSCOPY AND RELATED PHENOMENA*
  Tokushima, T., Harada, Y., Horikawa, Y., Takahashi, O., Senba, Y., Ohashi, H., Pettersson, L. G., Nilsson, A., Shin, S.
  2010; 177 (2-3): 192-205

- **Water Adsorption on alpha-Fe2O3(0001) at near Ambient Conditions** *JOURNAL OF PHYSICAL CHEMISTRY C*
  Yamamoto, S., Kendelewicz, T., Newberg, J. T., Ketteler, G., Starr, D. E., Mysak, E. R., Andersson, K. J., Ogasawara, H., Bluhm, H., Salmeron, M., Brown, G. E., Nilsson, A.
  2010; 114 (5): 2256-2266

- **Peroxide-like intermediate observed at hydrogen rich condition on Pt(111) after interaction with oxygen** *PHYSICAL CHEMISTRY CHEMICAL PHYSICS*
  MacNaughton, J. B., Naslund, L., Anniyev, T., Ogasawara, H., Nilsson, A.
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- **Complementarity between high-energy photoelectron and L-edge spectroscopy for probing the electronic structure of 5d transition metal catalysts** *PHYSICAL CHEMISTRY CHEMICAL PHYSICS*
  Anniyev, T., Ogasawara, H., Ljungberg, M. P., Wikfeldt, K. T., MacNaughton, J. B., Naslund, L., Bergmann, U., Koh, S., Strasser, P., Pettersson, L. G., Nilsson, A.
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- **Sensitivity of x-ray absorption spectroscopy to hydrogen bond topology** *PHYSICAL REVIEW B*
  Nordlund, D., Ogasawara, H., Andersson, K. J., Tatarkhanov, M., Salmeron, M., Pettersson, L. G., Nilsson, A.
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  Huang, C., Wikfeldt, K. T., Tokushima, T., Nordlund, D., Harada, Y., Bergmann, U., Niebuhr, M., Weiss, T. M., Horikawa, Y., Leetmaa, M., Ljungberg, M. P., Takahashi, O., Lenz, et al
  2009; 106 (36): 15214-15218

- **Assessing the electric-field approximation to IR and Raman spectra of dilute HOD in D2O** *JOURNAL OF CHEMICAL PHYSICS*
  Ljungberg, M. P., Lyubartsev, A. P., Nilsson, A., Pettersson, L. G.
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- **Increased fraction of weakened hydrogen bonds of water in aerosol OT reverse micelles** *JOURNAL OF CHEMICAL PHYSICS*
  Waluyo, I., Nordlund, D., Bergmann, U., Pettersson, L. G., Nilsson, A.
  2009; 131 (3)

- **On the Range of Water Structure Models Compatible with X-ray and Neutron Diffraction Data** *JOURNAL OF PHYSICAL CHEMISTRY B*
  Wikfeldt, K. T., Leetmaa, M., Ljungberg, M. P., Nilsson, A., Pettersson, L. G.
  2009; 113 (18): 6246-6255

- **NO2 Adsorption on Ag(100) Supported MgO(100) Thin Films: Controlling the Adsorption State with Film Thickness** *JOURNAL OF PHYSICAL CHEMISTRY C*
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  Salmeron, M., Bluhm, H., Tatarkhanov, N., Ketteler, G., Shimizu, T. K., Mugarza, A., Deng, X., Herranz, T., Yamamoto, S., Nilsson, A.
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- **Probing the hydrogen-bond network of water via time-resolved soft X-ray spectroscopy** *PHYSICAL CHEMISTRY CHEMICAL PHYSICS*
  Huse, N., Wen, H., Nordlund, D., Szilagyi, E., Daranciang, D., Miller, T. A., Nilsson, A., Schoenlein, R. W., Lindenberg, A. M.
  2009; 11 (20): 3951-3957
- **The structure of mixed H2O-OH monolayer films on Ru(0001)** *JOURNAL OF CHEMICAL PHYSICS*
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- **Diffraction and IR/Raman data do not prove tetrahedral water** *JOURNAL OF CHEMICAL PHYSICS*
  Leetmaa, M., Wikfeldt, K. T., Ljungberg, M. P., Odelius, M., Swenson, J., Nilsson, A., Pettersson, L. G.
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- **High resolution X-ray emission spectroscopy of liquid water: The observation of two structural motifs** *CHEMICAL PHYSICS LETTERS*
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  Nordlund, D., Odelius, M., Bluhm, H., Ogasawara, H., Pettersson, L. G., Nilsson, A.
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  Nikitin, A., Naeslund, L., Zhang, Z., Nilsson, A.
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- **Comment on "Isotope and Temperature Effects in Liquid Water Probed by X-ray Absorption and Resonant X-ray Emission Spectroscopy"** *PHYSICAL REVIEW LETTERS*
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  Yamamoto, S., Bluhm, H., Andersson, K., Ketteler, G., Ogasawara, H., Salmeron, M., Nilsson, A.
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