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## Kvalifikationer

Physics, PhD, Inner-shell radiationless transitions in atoms studied with synchrotron radiation, University of Oregon  
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Tilldelningsdatum: 1989 okt. 30

Spanish, B.A, Colby College  
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## Anställning

### Professor

Synkrotronljusfysik  
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2002 maj 15 → present

### Föreståndare

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### **Forskarassistent**

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1992 jan. 1 → 1995 maj 1

### **Postdoctoral fellow**

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1990 jan. 1 → 1992 dec. 31

## **Forskningsoutput**

### **X-ray-absorption spectrum of O<sub>2</sub><sup>+</sup>**

Cornetta, L. M., Kjellsson, L., Couto, R. C., Ågren, H., Carravetta, V., Sørensen, S. L., Kubin, M., Bülow, C., Zamudio-Bayer, V., Von Issendorff, B., Lau, J. T., Söderström, J., Agåker, M., Rubensson, J. E. & Lindblad, R., 2025 feb., I: Physical Review A. 111, 2, 022808.

### **Influence of Selective Carbon 1s Excitation on Auger–Meitner Decay in the ESCA Molecule**

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### **Experimental and theoretical near-edge x-ray-absorption fine-structure studies of NO<sup>+</sup>**

Lindblad, R., Kjellsson, L., De Santis, E., Zamudio-Bayer, V., Von Issendorff, B., Sorensen, S. L., Lau, J. T., Hua, W., Carravetta, V., Rubensson, J. E., Ågren, H. & Couto, R. C., 2022 okt., I: Physical Review A. 106, 4, 042814.

### **The origin of enhanced O<sub>2</sub><sup>+</sup> production from photoionized CO<sub>2</sub> clusters**

Ganguly, S., Barreiro, D., Walsh, N., Oostenrijk, B., Sorensen, S. L., Díaz-Tendero, S. & Gisselbrecht, M., 2022 feb. 4, I: Communications Chemistry. 5, 16.

#### Site-dependent nuclear dynamics in core-excited butadiene

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#### Breaking inversion symmetry by protonation: Experimental and theoretical NEXAFS study of the diazynium ion, $N_2H^+$

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#### Non-radiative decay and fragmentation in water molecules after $1a_1^{-1}4a_1$ excitation and core ionization studied by electron-energy-resolved electron-ion coincidence spectroscopy

Sankari, A., Stråhlman, C., Sankari, R., Partanen, L., Laksman, J., Kettunen, J. A., Galván, I. F., Lindh, R., Malmqvist, P. Å. & Sorensen, S. L., 2020 feb. 21, I: Journal of Chemical Physics. 152, 7, 074302.

#### Deepening into the nucleation and fission processes of nano-hydrated ammonia clusters - A combined theoretical and experimental study

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#### From synchrotrons for XFELs: The soft x-ray near-edge spectrum of the ESCA molecule

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#### The carbon and oxygen K-edge NEXAFS spectra of $CO^+$

Couto, R. C., Kjellsson, L., Ågren, H., Carravetta, V., Sorensen, S. L., Kubin, M., Bülow, C., Timm, M., Zamudio-Bayer, V., Von Issendorff, B., Lau, J. T., Söderström, J., Rubensson, J. E. & Lindblad, R., 2020, I: Physical Chemistry Chemical Physics. 22, 28, s. 16215-16223 9 s.

#### X-Ray Absorption Spectrum of the $N_2^+$ Molecular Ion

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#### Attosecond insight into electron correlation

Gisselbrecht, M., Guénot, D., Månsson, E., Kroon, D., Kotur, M., Larsen, E. W., Kasper, S., Dahlström, M. J., Lindroth, E., Kheifets, A. S., Arnold, C. L., Mauritsson, J., Sorensen, S. & L'Huillier, A., 2019, *Proceedings 2015 European Conference on Lasers and Electro-Optics - European Quantum Electronics Conference, CLEO/Europe-EQEC 2015*. Optical Society of America, CG\_5\_1

#### Tin-oxide nanoparticles deposited from a beam: what happens to the composition?

Tchaplyguine, M., Wright, C., Shavorskiy, A., Zhu, S., Mikkilä, M. H., Zhang, C., Björneholm, O., Mårzell, E., Mikkelsen, A., Sorensen, S., Hetherington, C. J. D. & Wallenberg, L. R., 2019, I: Physical chemistry chemical physics : PCCP. 21, 11, s. 6287-6295 9 s.

#### Chemical Understanding of the Limited Site-Specificity in Molecular Inner-Shell Photofragmentation

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#### The role of charge and proton transfer in fragmentation of hydrogen-bonded nanosystems: The breakup of ammonia clusters upon single photon multi-ionization

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#### **Tin Oxides: Insights into Chemical States from a Nanoparticle Study**

Wright, C., Zhang, C., Mikkilä, M. H., Mårzell, E., Mikkelsen, A., Ristinmaa Sörensen, S., Björneholm, O. & Tchapyguine, M., 2017 sep. 7, I: *Journal of Physical Chemistry C*. 121, 35, s. 19414-19419 6 s.

#### **Dissociation of cyclopropane in double ionization continuum**

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Lindau, I. & Sorensen, S. L., 2016, *Fysik i Lund i tid och rum*. Gidlunds förlag i samarbete med Fysiska institutionen, Lunds universitet

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#### **Attosecond time delays in C-60 valence photoemissions at the giant plasmon**

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#### **Dissociative double-photoionization of butadiene in the 25-45 eV energy range using 3-D multi-coincidence ion momentum imaging spectrometry**

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#### **Dynamics of dissociation in inner-valence excited 1,3-trans-Butadiene probed by 3-D multiple ion momentum imaging**

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#### **Molecular dynamics of NH<sub>3</sub> induced by core-electron excitation**

Walsh, N., Sankari, A., Laksman, J., Andersson, T., Oghbaie, S., Afaneh, F., Månsson, E., Gisselbrecht, M. & Ristinmaa Sörensen, S., 2015, I: *Physical Chemistry Chemical Physics*. 17, 29, s. 18944-18952

#### **Workshop on Timing Modes for Low-Emission Storage Rings**

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#### **Probing electron correlation on the attosecond time scale**

Guenot, D., Mansson, E., Kheifets, A. S., Kroon, D., Kotur, M., Larsen, E. W., Dahlstrom, M. J., Mauritsson, J., Lindroth, E., Sorensen, S., Gisselbrecht, M., Arnold, C. L. & L'Huillier, A., 2014 jan. 1, *High Intensity Lasers and High Field Phenomena, HILAS 2014*. Optical Society of America

**Bringing physics, synchrotron light and probing neutrons to the public: a collaborative outreach**

Micklavzina, S., Almqvist, M. & Ristinmaa Sörensen, S., 2014, I: *Physics Education*. 49, 2, s. 221-230

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**Nuclear dynamics of 1,3 trans butadiene after inner-valence and core excitation probed by 3D multiple ion imaging**

Oghbaie, S., Gisselbrecht, M., Laksman, J., Månsson, E., Walsh, N., Sankari, A. & Ristinmaa Sörensen, S., 2014, (Unpublished).

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**Dissociation of water molecules after O1s→4a1 excitation**

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**Investigation of site selectivity in the fragmentation of coreexcited 1,3-butadiene near the central and terminal carbon K edges**

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**Rapid bond rearrangement in core-excited molecular water.**

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**Charge migration and decay of doubly charged ammonia clusters**

Gisselbrecht, M., Grunewald, C., Månsson, E., Laksman, J., Sankari, A., Tchapyguine, M., Björneholm, O. & Ristinmaa Sörensen, S., 2012, *XXVII International Conference on Photonic, Electronic and Atomic Collisions (Icpeac 2011), Pts 1-15*. IOP Publishing, Vol. 388. s. 022112

**Role of the Renner-Teller effect after core hole excitation in the dissociation dynamics of carbon dioxide dication.**

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**Plasmon single- and multi-quantum excitation in free metal clusters as seen by photoelectron spectroscopy.**

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**Absolute core-level binding energy shifts between atom and solid: The Born-Haber cycle revisited for free nanoscale metal clusters**

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**Angle-resolved photoion yield and resonant Auger spectroscopy for the doubly excited Rydberg states above the C 1s threshold of CO**

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**Core localization and  $\sigma^*$  delocalization in the O 1s core-excited sulfur dioxide molecule.**

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**Femtosecond charge transfer in assemblies of discotic liquid crystals**

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**Size dependent fragmentation of argon clusters in the soft x-ray ionization regime.**

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**Symmetry-resolved x-ray absorption fine structure and resonant Auger-spectator-electron decay study of O 1s -> Rydberg resonances in O-2**

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**The influence of the sigma resonance on the Auger decay of core-ionized molecular nitrogen**

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**VUV oscillator strengths for iron lines of astrophysical importance**

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**X-ray absorption and resonant Auger spectroscopy of O(2) in the vicinity of the O 1s->sigma(\*) resonance: Experiment and theory.**

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**Electronic Doppler effect in resonant Auger decay of CO molecules upon excitation near a shake-up Pi resonance**

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## Aktiviteter

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2020 nov. 12 → 2020 nov. 26

### **FAIR data**

Axmon, A. (organisatör), Hellström, M. (organisatör), Johnsson, M. (organisatör), Lassi, M. (organisatör), Spruce, D. (organisatör), Bolmsten, F. (organisatör), Sorensen, S. L. (inbjuden talare), Petzold, M. (inbjuden talare) & Nilsson, P. (inbjuden talare)

2019 feb. 5

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Ristinmaa Sörensen, S. (Roll ej angiven)

2019 jan. 24

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2016 mars 18

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Ristinmaa Sörensen, S. (Roll ej angiven)

2015 mars 25 → 2015 mars 27