Physics and chemistry of interstellar ice

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Publications

Refereed papers

1. *Morphology of porous amorphous solid water and CO_2 containing ices*
   K. Isokoski, J-. B. Bossa and H. Linnartz
   Astronomy & Astrophysics, to be submitted (Chapter 3)
2. *Laser-desorption time-of-flight analysis of interstellar ices*
   K. Isokoski, J.-B. Bossa, D. M. Paardekooper and H. Linnartz
   Reviews of Scientific Instruments, to be submitted (Chapter 6)
3. *Highly resolved infrared spectra of pure CO_2 ice (15-75 K)*
   K. Isokoski, C. A. Poteet and H. Linnartz
   Astronomy & Astrophysics, to be submitted (Chapter 5)
4. *Anomalous CO_2 ice toward HOPS-68: a tracer of protostellar feedback*
   C. A. Poteet, K. M. Pontoppidan, S. T. Megeath, D. M. Watson, **K. Isokoski**, J. E. Bjorkman, P. D. Sheehan and H. Linnartz
   The Astrophysical Journal, in press (Chapter 5)
5. *Chemistry of massive young stellar objects with a disk-like structure*
   K. Isokoski, S. Bottinelli, E. F. van Dishoeck
   Astronomy & Astrophysics, accepted (Chapter 7)
6. *Thermal collapse of porous interstellar ice*
   J-. B. Bossa, **K. Isokoski**, M. S. de Valois and H. Linnartz
   Astronomy & Astrophysics, 2012, 545, A82 (Chapter 2)
7. *CO mixed in CH_3OH: the answer to the non-detection of the 2152 cm^{-1} band*
   H. M. Cuppen, E. M. Penteado, **K. Isokoski**, N. van der Marel and H. Linnartz
   Monthly Notices of the Royal Astronomical Society, 2011, 417, 2809-2816 (Chapter 4)
8. *HXeOBr in a xenon matrix*
   L. Khriachtchev, S. Tapio, A. V. Domanskaya, M. Räsänen, **K. Isokoski** and J. Lundell
   Journal of Chemical Physics, 2011, 134 (12)
9. *A Small Neutral Molecule with Two Noble-Gas Atoms: HXeOXeH*
   L. Khriachtchev, **K. Isokoski**, A. Cohen, M. Räsänen and R. B. Gerber
   Journal of American Chemical Society, 2008, 130 (19), 6114–6118
10. *Vibration rotation Fourier transform infrared spectrum of the C–D and C–C stretching fundamental, ν_1 and ν_2, band systems of deuterated monobromoacetylene*
    O, Vaittinen, R. Z. Martinez, P. Suero, **K. Isokoski** and L. Halonen
    Journal of Molecular Spectroscopy, 2006, 236, 16-20

Conference proceedings

1. *Solid State Pathways towards Molecular Complexity in Space*
   H. Linnartz, J-. B. Bossa, J. Bouwman, H. M. Cuppen, S. H. Cuylle, E. F. van Dishoeck, E. C. Fayolle, G. Fedoseev, G. W. Fuchs, S. Ioppolo, **K. Isokoski**, T. Lamberts, K. I. Öberg, C. Romanzin, E. Tenenbaum, J. Zhen
   IAU Symposium 280: The Molecular Universe, 2011, 390–404

Curriculum vitae

I was born on 31st of May, 1982, in the town of Nivala, Finland. Soon after, my family moved to the neighboring town of Ylivieska, where I grew up.

After finishing senior high-school at Ylivieskan Lukio in the year 2001, I moved to Helsinki to pursue my studies in Chemistry at the University of Helsinki. Having a special interest in Physical Chemistry, I did my Master's research project in the Solid State Spectroscopy and Photochemistry Research Group, under the supervision of Prof. Markku Räsänen and Dr. Leonid Khriachtchev. Our research on the photochemistry of water in a xenon matrix resulted in the discovery of a new noble-gas compound, HXeOXeH. The Finnish Chemical Society awarded me the young researcher's prize for the best thesis in chemistry.

In 2009 I moved to Leiden, the Netherlands, where I started my PhD studies at the Raymond and Beverly Sackler laboratory for astrophysics, under the supervision of Prof. Harold Linnartz and Prof. Ewine van Dishoeck. The principal project was the construction of a new experimental instrument for the study of reactions leading to complex molecules in interstellar ices. The project was funded by the Netherlands research school for astronomy (NOVA). Other research projects during my PhD have focussed on the characterization of the morphology and composition of interstellar ices using a range of experimental techniques. I also had a chance to become familiar with observational astronomy during my stay at the James Clerk Maxwell Telescope (JCMT) at Mauna Kea, Hawaii. During my PhD I have supervised students and I have had the opportunity to present my work at several international conferences, including "The molecular universe" IAU Symposium 280 in Toledo (Spain), "European conference on surface science" in Groningen (Netherlands), "The chemical cosmos" COST annual meeting in Catania (Italy), and "New astronomical challenges for surface science" AstroSurf meeting in Edinburgh (UK). After my PhD, I am moving to Sydney, Australia.

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