



Nuclear spin effects in astrochemistry

2-4 May 2017 Grenoble (France)

Context



2-4 May, Grenoble (France)

- **First edition in Göteborg (Sweden), june 2014**
- Amount of **observational data** on spin-type ratios has grown rapidly, along with rapid progress of **laboratory measurements**
- Inclusion of **spin-type dependent reaction rates** in theoretical models of interstellar chemistry
- Relevance of nuclear spin specific investigations in astrochemistry

Aim



2-4 May, Grenoble (France)

- bring together **experts** from the experimental, theoretical and observational (solar-system and galactic) communities
- discuss the **current status and new challenges** of interpreting the growing amount of data on molecular spin ratios
- **Interdisciplinary** sessions, from observations to laboratory and back

2017: a triple anniversary



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- **1927** Prediction of the ortho and para forms of H_2 by Hund [*Z. Phys.* **41** 239] and Heisenberg [*Z. Phys.* **42** 93]
- **1977** General symmetry selection rules for reactive collisions by Quack [*Mol. Phys.* **34** 477]
- **1997** Experimental observation of ortho-para H_3^+ selection rules by Uy, Cordonnier & Oka [*Phys. Rev. Lett.* **78** 3844]

Program



2-4 May, Grenoble (France)

- Tuesday afternoon Ortho-to-para ratio (OPR) of H_2O
Chair: Eva Wirström
Wine & Cheese party
- Wednesday morning OPR of H_2
Chair: John Black
- Wednesday afternoon OPR of H_3^+ and organics
Chair: Darek Lis
Social event + conference dinner
- Thursday morning OPR of other hydrides
Chair: Evelyne Roueff

Acknowledgements



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- SOC

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- Eva Wirström, Chalmers University of Technology, Sweden

- LOC

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