

THURSDAY AFTERNOON: SECTION 1

Sergio Ioppolo, *Presiding*

- 1:30 (659).** Hunting for water in the atmospheres of exoplanets. **M. Brogi**
- 2:10 (660).** Direct detection of water in the thermal emission spectra of hot jupiters. **C. Buzard**, D. Piskorz, G.A. Blake, C. Bender, B. Benneke, M. Line, A. Lockwood
- 2:30 (661).** Sources of water and other volatiles to the terrestrial planets. **C. Alexander**
- 3:10** Intermission.
- 3:30 (662).** Water on rocky planets: Atmospheres, oceans, and deep interiors. **L. Schaefer**
- 4:10 (663).** Water mediated ^{32}S chemistry in planetary atmospheres. **V. Vaida**, J.A. Kroll, B.N. Frandsen, H. Kjaergaard
- 4:30 (664).** Confinement effects on water's nuclear spin isomer conversion. **C. Wespiser**, P. Turgeon, J. Vermette, Y. Kalugina, P. Roy, P. Ayotte
- 4:50 (665).** Preparation, characterization, and storage of water vapours highly enriched in its ORTHO-H₂O nuclear spin isomer. **P. Ayotte**, J. Vermette, I. Braud, P. Turgeon, X. Michaut, T. Putaud, G. Alexandrowicz
- 5:10** Concluding Remarks.

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WATER IN THE UNIVERSE

Geoffrey A. Blake
Sergio Ioppolo
Organizers

Marquis Marriott San Diego Marina
Grand Ballroom Sections 10 OR 1
25 – 29 August 2019

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SUNDAY AFTERNOON: SECTION 10

Geoffrey A. Blake, *Presiding*

- 1:30** Introductory Remarks.
1:35 (72). Water megamaser emission in galaxies.
V. Impellizzeri
2:10 (73). Water vapor in galaxies at high redshift. **C. Yang**
2:45 (74). Chemistry of water in our galaxy and beyond. **S. Viti**
3:20 Intermission.
3:40 (75). Influence of water on reactivity in and on icy grain surfaces. **A. Lamberts**
4:15 (76). Three things you probably didn't know about amorphous solid water. **M.R. McCoustra**
4:50 (77). Rotational spectroscopy as a probe for gas-phase products of thermal- and photo-processed ices.
S.L. Widicus Weaver, K. Yocum, A. Jones, E. Todd, P.A. Gerakines, S.N. Milam

MONDAY MORNING: SECTION 10

Martin R. McCoustra, *Presiding*

- 8:30 (130)**. Water at the dawn of star formation. **P. Caselli**
9:05 (131). Water in protostellar systems: Past, present, and future. **L. Kristensen** (Given by E. Bergin)
9:40 (132). Water ice observations, from dense clouds to protoplanetary disks. **A. Boogert**
10:15 Intermission.
10:35 (133). Behavior of OH radical on ice. **N. Watanabe**, A. Miyazaki, W. Sameera, T. Hama, A. Kouchi
11:10 (134). Activation energy of OH-radical diffusion on water ice surface. **A. Miyazaki**, N. Watanabe, W. Sameera, T. Hama, H. Hidaka, A. Kouchi
11:30 (135). Inversion of surface voltage on H₂O films affecting sublimation of CO underlayer. **A. Ishibashi**, Y. Oba, T. Hama, A. Kouchi, N. Watanabe
11:50 (136). Water forming reaction H₂ + OH → H₂O + H: Atom tunneling, kinetic isotope effects and influence of an ice surface. **J. Meisner**, A. Lamberts, J. Kästner

MONDAY AFTERNOON: SECTION 10

Edwin Bergin, *Presiding*

- 1:30 (189)**. Chemistry on mantles of water ice surrounding interstellar dust particles. **E. Herbst**
2:10 (190). Interactions and dynamics in interstellar ices. **H. Cuppen**
2:50 (191). Structure and composition of interstellar ice: Linking observations to laboratory studies via IR spectroscopy. **J.A. Noble**
3:30 Intermission.
3:50 (192). Combined laboratory and theoretical studies on the formation of alcohols in the H₂O-rich ice phase of prestellar cores.
D. Qasim, G. Fedoseev, A. Lamberts, K. Chuang, J. He, J. Kästner, S. Ioppolo, H. Linnartz
4:30 (193). Catalytic role of water ice in the formation of prebiotic molecules. **E. Congiu**, T. Nguyen, F. Dulieu

WEDNESDAY MORNING: SECTION 1

Susana Widicus Weaver, *Presiding*

- 8:30 (321)**. GOTHAM and ARKHAM: First results from programs to explore aromatic chemistry at the earliest stages of star formation.
B. McGuire
9:05 (322). Constraining the formation of interstellar methanol using isotopologues. **O. Wilkins**, B. Carroll, G.A. Blake
9:25 (323). Quantum chemical perspective of biomolecule synthesis via UV-irradiation of their precursors in astrophysical ices. **P. Bera**
9:45 (324). Producing accurate theoretical anharmonic infrared cascade spectra of PAHs. **C.J. Mackie**, A. Candian, X. Huang, E. Maltseva, A. Petrignani, T. Chen, J. Oomens, W. Buma, T.J. Lee, A.G. Tielens
10:20 Intermission.
10:40 (325). Theoretical study of the formation of glycolonitrile on icy grain mantles from the reaction of C⁺ and HCN. **D.E. Woon**
11:15 (326). Vacuum ultraviolet photodissociation of CS. Z. Xu, Y.C. Chang, C. Ng, W.M. Jackson, S.R. Federman, L. Wang,
K.N. Crabtree
11:50 (327). Synthesis of alkylphosphonic acids in interstellar analogue ices of phosphine and water. **A.M. Turner**, M. Abplanalp, C. Meinert, R. Kaiser

WEDNESDAY AFTERNOON: SECTION 1

Ryan C. Fortenberry, *Presiding*

- 1:30 (380)**. Interstellar water and organic molecules in protoplanetary disks. **C. Favre**
2:10 (381). Does the early planetesimal get the water?
M. McClure, C. Dominik
2:50 (382). Water in planet formation: What do we know and what do we want to know?. **E. Bergin**
3:30 Intermission.
3:50 (383). Molecular snow lines in protoplanetary disks.
G.A. Blake, D. Anderson, E. Bergin
4:10 (384). Importance of zero-point energy for crystalline ice phases: Comparison of force fields and density functional theory. **J. Meyer**
4:45 (385). Water-ice: Quest to understand its physical forms and chemical processes. **M.S. Gudipati**

THURSDAY MORNING: SECTION 1

Matteo Brogi, *Presiding*

- 8:00 (601)**. The delivery and evolution of water within the solar system. **G.L. Villanueva**, S.N. Milam
8:35 (602). Water on solid bodies in our solar system.
R. Klima, A. Rivkin, T.M. Orlando
9:10 (603). Chemical kinetic modeling of cometary ice processing. **R.T. Garrod**
9:45 Intermission.
10:05 (604). Making abiotic O₂ from water in comets.
R.C. Fortenberry
10:25 (605). TeraHertz time domain spectroscopy (THz TDS) of molecular ices. **G.A. Blake**, S. Ioppolo, M.A. Allodi, B. McGuire, G. Mead
11:00 (606). Regenerative water sources on surfaces of airless bodies. **C. Zhu**, S. Göbi, M. Abplanalp, R. Frigge, J.J. Gillis-Davis, G. Dominguez, K. Mijlković, R. Kaiser
11:20 (607). On the formation and destruction cycle of solid carbonic acid in the solar system. **S. Ioppolo**, Z. Kanuchová, R.L. James, A. Dawes, N.C. Jones, S.V. Hoffmann, N.J. Mason, G. Strazzulla