

IV Workshop Italian Astrobiology Society
“From Astrophysics to Astrochemistry towards Astrobiology”

FINAL PROGRAM

Wednesday, September 19

8.30 – 9.30
Registration

9.30
Welcome and opening remarks
(Prof. Fausto Elisei, Preside della Facoltà di Scienze MM FF NN; Prof. Antonio Laganà, Direttore del Dipartimento di Chimica; Dr. John R. Brucato, Presidente della Società Italiana di Astrobiologia)

10.00-10.45
Cecilia Ceccarelli (Obs. Grenoble) *Solicited*
Our Chemical Origins

10.45-11.30
Raul Baragiola (Univ. of Virginia)
UV -induced Molecular Synthesis below the Surface of Icy Satellites: Implications for Extraterrestrial Ice

11.30-12.00 Coffee Break

12.00-12.20
Angela Occhiogrosso (University College London)
Modelling of Methyl Formate Formation Towards Various Astronomical Environments

12.20-12.40
Savino Longo (Univ. Bari)
Simple models of meteor entry in planetary atmospheres

12.40-13.00
Tommaso Grassi (Univ. Roma “La Sapienza”)
Studying the Chemical Evolution of ISM Regions Via Numerical Methods

13.00-15.00 Lunch Break

15.00-15.45
Wolf D. Geppert (Stockholm Univ.) *Solicited*
Formation of Biomolecule Precursors in Space

15.45-16.05
Cristina Puzzarini (Univ. Bologna)
Astrophysical Investigations: the Role Of Rotational Spectroscopy

16.05-16.25
Sonia Melandri (Univ. Bologna)
Flexibility in Complex Organic Molecules: a Challenge for Spectroscopy and Computational Methods

16.25-17.00 Coffee Break

17.00-17.20

John R. Brucato (INAF-Obs. Arcetri)

MarcoPolo-R: Asteroid Sample Return Mission

17.20-17.50

Renè Demets (ESTEC-Noordwijk)

ESA Astrobiology – an Overview

17.50-18.10

Gian Paolo Tozzi (INAF-Obs. Arcetri)

Organic Ice in Comet 103P/Hartley 2 at the Time of the EPOXI Mission Fly-By

18.10-18.30

Franco Cataldo (INAF-Obs. Catania)

Solid State Radiolysis of Non-Proteinaceous Amino Acids: Astrobiological Implications

18.30-18.50

Nadia Balucani (Univ. Perugia)

The Reactions of Atomic Oxygen with Unsaturated Hydrocarbons in Extraterrestrial Environments

Thursday, September 20

9.00-9.45

Piero Ugliengo (Univ. Torino) **Solicited**

Interstellar Prebiotic Formation of Glycine, Delivery to Earth and Polymerization on Feldspars

9.45-10.05

Franco A. Gianturco (Univ. Roma “La Sapienza”)

Metastable Anions of C-rich Molecules: Dynamics and Role in Planetary Atmospheres and the ISM of Polyynes and PAHs

10.05-10.25

Silvano Onofri (Univ. Tuscia)

Safe Travelling Of Microbes Through Outer Space Within Rocks

10.25-10.45

Giovanni Strazzulla (INAF-Obs. Catania)

Energetic Processing of Ices and the Search for Life on Enceladus

10.45-11.05

Oscar Trippella (Univ. Perugia)

Stellar Origin of Early Solar System Short-Lived Radioactivities and Their Role in Melting and Differentiating Solid Bodies

11.05-11.30 Coffee Break

11.30-12.15

Manuela Coci (Univ. Catania) **Solicited**

Lithotrophic Bacteria and Archaea in Aquatic Environments

12.15-12.35

Marco Casarosa (Univ. Firenze)

Evidence of DNA Primary Damage in Space Environment

12.35-12.55

Teresa Fornaro (INAF-Obs. Arcetri)

Adsorption of Nucleic Acid Bases on Magnesium Oxide (MgO): Hints of Life Detection on Mars

13.00-15.00 Lunch Break

15.00-15.45

Giacomo Certini (Univ. Firenze) **Solicited**

Do Extraterrestrial Soils Exist?

15.45-16.05

Giovanni Vladilo (INAF – Trieste)

Studies of Planetary Habitability Performed with Energy Balance Climate Models

16.05-16.25

Eugenio Simoncini (INTA-CSIC, Madrid)

Thermodynamics Disequilibrium as a Parameter to Redefine Habitability

16.25-16.45

Guido Barone (Univ. Napoli “Federico II”)

The Possible Role of Clathrate Hydrates as Storage and Sink for Prebiotic Molecules in Extreme Conditions

16.45-17.15 Coffee Break

17.30-19.00

ROUND TABLE “Da Armstrong a Curiosity, da Marte alle galassie. Biomedicina spaziale e ricerca di vita aliena” presso la sala del 100dieci (Via Pascoli)

Cecilia Ceccarelli (Institut de Planétologie et d'Astrophysique de Grenoble),

Mariano Bizzarri (Università di Roma “La Sapienza”),

Rene Demets (ESA-ESTEC),

Valfredo Zolesi (Kayser Italia)

Moderatore: *Fabio Pagan (Biologo, giornalista e divulgatore scientifico)*

SOCIAL DINNER

Friday, September 21

9.00-9.20

Giovanni Pratesi

Surface-Enhanced Raman Scattering Investigation of Nucleobases Adsorbed on a Martian Meteorite and Samples of Martian Analogue Material

9.20-9.40

Stefano Stranges (Univ. Roma “La Sapienza”)

Interaction of Chiral Molecules with Synchrotron Radiation: Enantioselective Study of Oxirane Derivatives

9.40-10.00

Alessandro Donati (Kayser Italia)

FEBO: an ASI Facility for Astro- and Exo- Biology Observations

10.00-10.20

Daniela Billi (Univ. Roma "Tor Vergata")

Desert Cyanobacteria Go to ISS: Ground-based Simulations in Preparation of the EXPOSE-R2 Mission

10.20-10.40

Daniela Ascenzi (Univ. Trento)

Growth of Organic Molecules in Planetary Atmospheres Via Ion-Molecule Reactions

10.40-11.00

Domenico Stranges (Univ. Roma "La Sapienza")

Ultraviolet Photodissociation of Hydrocarbon Radicals

11.00-11.30 Coffee Break

11.30-11.50

Dimitrios Skouteris (Univ. Perugia)

N+O Associative Ionization with Formation of NO⁺: a Viable Route in the Interstellar Medium?

11.50-12.10

Marzio Rosi (Univ. Perugia)

Dimerization of Methanimine and Implications for the Atmosphere of Titan

12.10-12.30

Stefano Falcinelli (Univ. Perugia)

Dissociation of the CO₂ Dications in the Upper Atmospheres of Planets - a New Route of CO⁺ and O⁺ Formation

12.30-12.50

Federico Palazzetti (Univ. Perugia)

Chiral Effects in Oriented Molecules Collisions: Investigating the Origin of the Building Blocks of Life

12.50

Final remarks

13.00 Adjourn