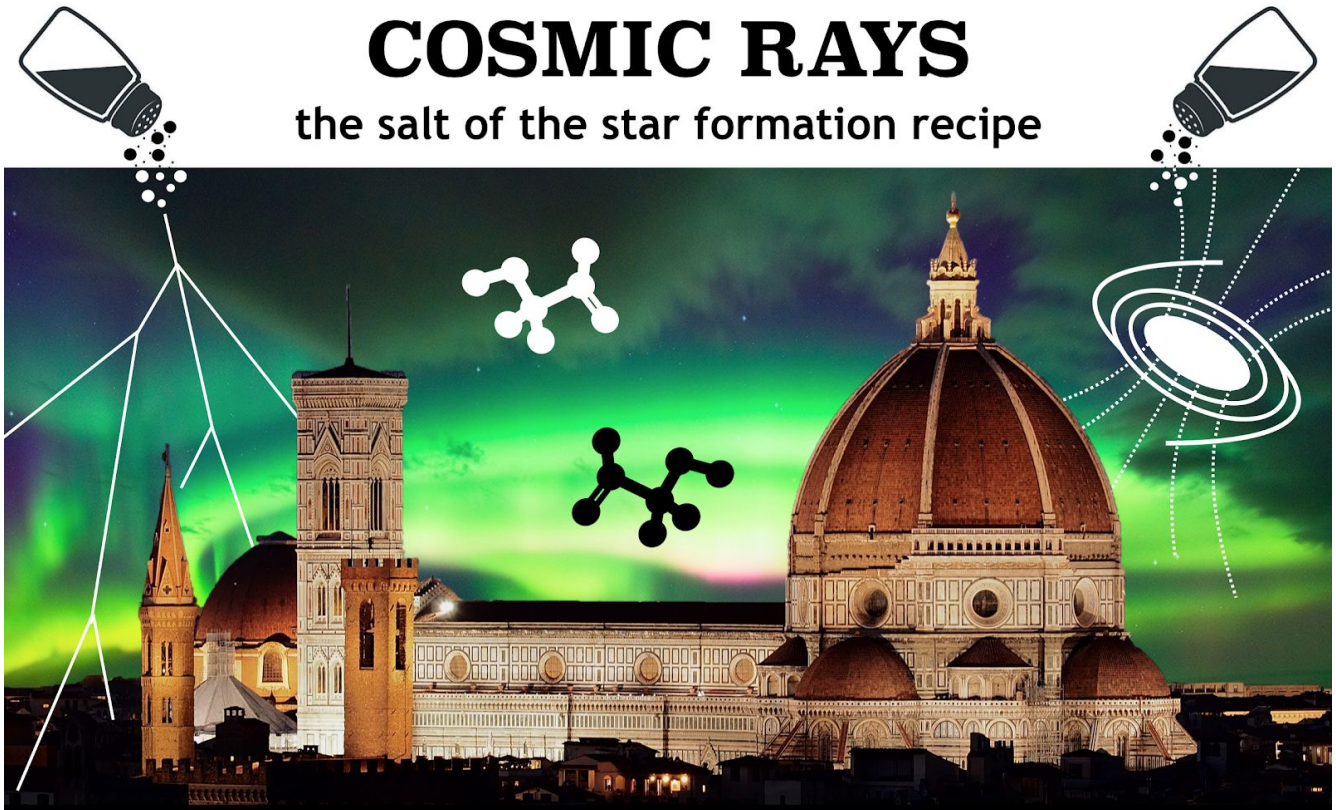


Scientific Programme

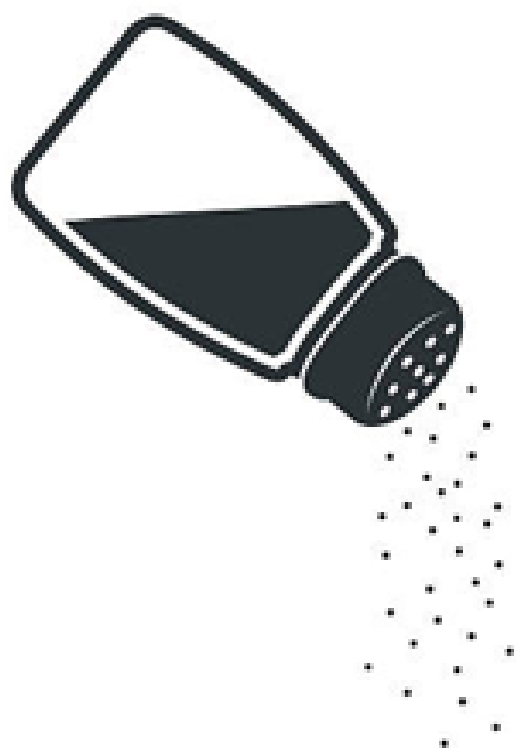
COSMIC RAYS

the salt of the star formation recipe






2-4 May 2018 Arcetri, Florence, Italy
Department of Physics and Astronomy






Wednesday, May 2nd

08:30-09:15	Registration	
09:15-09:30	Welcome and logistics	
SESSION 1-a		
Role of cosmic rays in star and planet formation: Theory		
Chair: Paola Caselli		
09:30-10:00	Daniele Galli (I)	Cosmic-ray ionization in clouds and disks
10:00-10:20	Tommaso Grassi (C)	The effects of cosmic rays on microphysics
10:20-10:40	Alexei Ivlev (C)	Cosmic-ray ionisation in circumstellar discs
10:40-11:00	Coffee break and Posters 	
11:00-11:30	Stefano Gabici (I)	Cosmic-ray penetration in diffuse clouds
11:30-11:50	Dmitry Chernyshov (C)	Role of self-excited turbulence in penetration of cosmic rays into molecular clouds
Chair: Alexandre Marcowith		
11:50-12:20	Philipp Girichidis (I)	Dynamical and chemical impact of cosmic rays on the ISM
12:20-12:40	Soonyoung Roh (C)	Propagation of cosmic rays in magnetized protoplanetary disks
12:40-13:00	Yuri Fujii (C)	MHD simulations of protoplanetary disks with non-equilibrium ionization chemistry
13:00-14:30	Lunch 	
14:30-14:50	James Wurster (C)	How cosmic rays shape a protostar
14:50-15:10	Thomas Bisbas (C)	Cosmic-ray induced destruction of CO in star-forming galaxies and implications for tracing H ₂ gas
SESSION 1-b		
Role of cosmic rays in star and planet formation: Observations		
Chair: Víctor M. Rivilla		
15:10-15:40	Paola Caselli (I)	The importance of cosmic rays in star and planet formation
15:40-16:10	David Neufeld (I)	The Galactic cosmic-ray ionization rate implied by observations of atomic and molecular ions


16:10-16:30	Takeshi Oka (C)	H_3^+ , the ideal probe for in situ measurements of soft cosmic rays
16:30-17:00	Coffee break and Posters	
17:00-17:30	Jesús Martín-Pintado (I)	On the effects of cosmic rays on Galactic center molecular clouds
17:30-17:50	Shaoshan Zeng (C)	Chemical complexity in the Galactic centre GMCs and the imprint of cosmic rays: the nitrogen-bearing family
17:50-18:10	Farhad Yusef-Zadeh (C)	Consequences of the high rates of cosmic-ray ionization toward the Galactic center

Thursday, May 3rd

SESSION 2-a		
Impact of cosmic rays on the formation of interstellar molecules: Observations and Models		
Chair: Ana López-Sepulcre		
09:00-09:30	Izaskun Jiménez-Serra (I)	The formation of COMs in the ISM: from cold cores to Galactic center molecular clouds
09:30-09:50	Maria Drozdovskaya (C)	The role of cosmic rays in setting the chemical content of protoplanetary disk midplanes
09:50-10:10	David Quénard (C)	Influence of the cosmic-ray ionisation rate on complex organic molecules chemistry
10:10-10:30	Will Robson Rocha (C)	Chemical evolution of PPDs employing optical constants of cosmic-ray processed ice into ProDiMo code
10:30-10:50	Coffee break and Posters	
10:50-11:10	Juris Kalvāns (C)	Cosmic-ray induced diffusion, reactions and destruction of molecules in interstellar ices
11:10-11:30	Wasim Iqbal (C)	Nautilus multi grain model: impact of cosmic-ray induced desorption in abundances of COMs in the ISM
11:30-11:50	Mélysse Bonfand (C)	The influence of cosmic rays on the chemistry in Sagittarius B2


SESSION 2-b
Impact of cosmic rays on the formation of interstellar molecules:
Laboratory experiments

Chair: Izaskun Jiménez-Serra



11:50-12:20	Guillermo Muñoz-Caro (I)	A comparison of UV, X-ray, and ion processing of icy dust analogs
12:20-12:40	Sergio Ioppolo (C)	Solid state chemistry driven by cosmic-ray induced secondary electrons
12:40-13:00	Gleb Fedoseev (C)	Laboratory simulations of cosmic-ray processing of N ₂ -containing ices at dark cloud conditions
13:00-14:30	Lunch	
14:30-15:00	Maria Elisabetta Palumbo (I)	Experimental studies of the role of cosmic rays in the chemistry of interstellar icy grain mantles
15:00-15:20	Gustavo Adolfo Cruz Díaz (C)	Degradation of PAHs and radiation-induced products by cosmic-ray analogs

SESSION 3
Cosmic rays and the origin of life
(ISM, comets, planetary atmospheres, and early Earth)

Chair: David Neufeld

15:20-15:50	Christiane Helling (I)	The effect of cosmic rays on the ionisation and chemistry of exoplanets and brown dwarfs
15:50-16:10	John Robert Brucato (C)	Heterogeneous catalysis of organic molecules in harsh environments
16:10-16:40	Coffee break and Posters	
16:40-17:00	Alexei Struminsky (C)	Radiation conditions near exoplanets of G-M-stars
17:00-17:30	Guillaume Gronoff (I)	Chemical impact of cosmic rays: towards a new vision of planetary system evolution
17:30-17:50	Vasily Kozhevnikov (C)	The simulation of stratospheric discharges sustained by the secondary electrons from cosmic rays
18:00	Promenade from Arcetri to Galileo's house and Social "Aperitivo"	

Friday, May 4th

SESSION 4 Cosmic-ray factories: local acceleration in protostars		
Chair: Stefano Gabici		
9:00-9:30	Elena Amato (I)	On the mechanisms of particle acceleration in astrophysical sources
9:30-9:50	Donna Rodgers-Lee (C)	The ionising effect of low energy cosmic rays from a Class II object on its protoplanetary disk
9:50-10:10	Christian Rab (C)	Modelling of high-energy ionization processes in the circumstellar environment of young solar-like stars
10:10-10:30	Coffee break and Posters	
10:30-11:00	Alexandre Marcowith (I)	In-situ cosmic-ray sources in young stellar objects
11:00-11:20	Francesco Fontani (C)	Carbon-chain growth induced by cosmic rays in the Solar-type protocluster OMC2-FIR4
11:20-11:40	Linda Podio (C)	Observational constraints on the cosmic-ray ionisation rate in the protostellar shock L1157-B1
11:40-12:00	Ignazio Pillitteri (C)	Hot and glowing: the high energy emission of the very young stellar object Elias 29
12:00-12:30	Anabella Araudo (I)	Particle acceleration, magnetic field amplification, and gamma-ray emission in protostellar jets
12:30-14:00	Lunch	
Chair: Elena Amato		
14:00-14:30	Jan Forbrich (I)	New perspectives on high-energy processes from stellar radio astronomy
14:30-14:50	Rachael Ainsworth (C)	Synchrotron emission in protostellar jet shocks revealed by metre wavelength observations
14:50-15:10	Mayra Osorio (C)	Non-thermal radio emission from the jet associated with an intermediate-mass protostar
15:10-15:30	Final remarks	

List of posters

1	Marin Chabot	PAH destruction by heavy cosmic rays and carbon chains production rates
2	Laura Colzi	Carbon isotope chemistry in intermediate- and high-mass star forming cores
3	Alicja Domaracka	Intra-cluster molecular growth processes induced by low-energy ion processing of carbonaceous system
4	Yasuo Fukui	Cosmic-ray acceleration and star formation in the gamma ray SNR RXJ1713.7-3946
5	Siddhartha Gupta	Lack of thermal energy in superbubbles: hint of cosmic rays?
6	Michał Hanasz	Synchrotron emission from cosmic-ray driven galactic winds in star-forming galaxies
7	Juris Kalvāns	Temperature spectra for interstellar grains heated by cosmic rays
8	Mateusz Ogrodnik	Piernik MHD code: modelling energy dependent transport of cosmic-ray electrons with energy spectrum
9	Bilal Ramzan	Structure of interstellar clouds with cosmic rays and waves
10	Víctor M. Rivilla	The role of cosmic rays and other energetic phenomena in the chemistry of P-bearing molecules in the Galactic Center
11	Hermann Rothard	Radiolysis and sputtering of carbon dioxide ice by swift (MeV-GeV) ions
12	Hidetoshi Sano	A star-forming dense cloud core embedded within the brightest gamma-ray SNR RX J1713.7-3946
13	Christopher Shingledecker	Cosmic ray-driven radiation chemistry in astrochemical models
14	Dominik Wóltański	Synchrotron signatures from the cosmic-ray driven dynamo
15	Yumiko Yamane	Cosmic ray acceleration and star formation in the superbubble 30 Doradus C