



Report from event supported by RadioNet

TITLE	ZOOMING IN ON STAR FORMATION
DATE:	10-14 JUNE 2019
LOCATION:	NAFPLIO, GREECE
MEETING WEBPAGE:	Vouleftikon Historical building
HOST INSTITUTE:	NIELS BOHR INSTITUTE - UNIVERSITY OF COPENHAGEN
RADIONET BENEFICIARY / NO:	<i>OSO / 07</i>

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RadioNet has received funding from the EU's Horizon 2020 research and innovation programme under the grant agreement No 730562



Report:

SCIENTIFIC SUMMARY

Event webpage: <https://indico.nbi.ku.dk/event/1055/>

1 SCIENTIFIC SUMMARY

This conference was one of the major conferences in 2019 in the field of star formation. Topics that were covered in the conference include: a) Galactic scale star formation b) the formation and properties of molecular clouds c) The fragmentation of molecular clouds, filaments, cores/clumps and the origin of the core and stellar initial mass functions d) Low mass star formation, disk formation, and non-ideal MHD effects d) The formation of massive stars d) Star cluster formation and feedback effects. The conference was a venue to celebrate the rich and successful career of Prof. Ake Nordlund (Niels Bohr Institute, University of Copenhagen). As such, the conference also included session on other fields in which Ake Nordlund was also very active and has made very significant contributions, namely: the physics of stellar atmospheres, numerical code development, and planet formation.

Ake Nordlund started his career by working on stellar physics. He had made pioneering contributions in the field on stellar atmospheres, particularly in relation to his studies on convection. His first publication in star formation date from the late nineties with Paolo Padoan when they wrote a paper on the origin of the initial stellar mass function. He then moved on to work on many issues in the field of star formation, including, but not limited to, the star formation rate in molecular clouds and the role of turbulence and magnetic fields. He also worked on supernova driven turbulence, and in relation to this he made significant contributions to the theory of elements mixing in the interstellar medium and in molecular clouds. Ake most recent work is related to the formation of planets and he is trying to link the process of planet formation to the larger environments in which protoplanetary disks form and evolve. Ake Nordlund is essentially a numericist and he has developed many codes that are widely used in the astronomical community (Stagger code, a Particle-in-cell code, and the DISPATCH code).

As was initially planned, the conference assembled expert astronomers and young researchers in all areas Ake has worked in. A scientific summary of the conference is given below.

- a) Session: Galactic scale star formation: The properties of star forming clouds/cloud in the Milky Way were reviewed by Davide Elia. The origin of the star formation scaling laws was discussed by Diane Cormier with an emphasis on the case of the low metallicity dwarf-galaxies. Eve Ostriker presented the theoretical aspects, and highlighted the role of different mechanisms (notably feedback) in regulating star formation on galactic scales.
- b) Session: Molecular cloud formation and properties: Paolo Padoan and Hubai Li discussed the interplay between turbulence, magnetic field, and gravity in molecular clouds from a theoretical and observational perspective, respectively. Simulations of colliding flows were presented (Waering) and an investigation of whether molecular clouds can be dispersed by supernovae explosions happening in their vicinity (Seifried).
- c) Session: Molecular cloud fragmentation and origin of the CMF/IMF. Philippe Andre argued that the IMF is very possibly imposed by the distribution of the properties of filamentary structures in the clouds. Controversial results about the universality of the IMF were presented by Haugboelle and Hennebelle which argued for and against some variations in the value of the peak of the IMF among clusters

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- d) Session: Low-mass star formation: Kengo Tomida and Sarah Sadavoy discussed the role of magnetic fields in relation to the formation of disks, with a particular emphasis on the role of non-ideal MHD effect such as ambipolar diffusion and Hall effect and Ohmic diffusion.
- e) Session: Stellar physics and links to star formation: Bengt Gustafsson gave a recorded talk on the problem of the stellar composition and what does it tell us about the process of star formation. Bengt went through all the scenarios that can help explain the Solar and Earth chemical composition in the context of the formation of the Solar system.
- f) Session: High-mass star formation: Sylvain Bontemps presented the puzzling picture of massive cores that show no significant signs of fragmentation. This raises the question of how stellar clusters form and how can low mass star form/or assemble around high-mass ones.
- g) Session: The formation of stellar clusters and stellar feedback: Richard Wunsch presented new simulations and models of the formation of second generation of stars in massive clusters, such as those found in globular clusters. The theory is that the new generation of stars forms from recycled gas from the earlier generation.
- h) Session: Planet formation. Formation of the Solar System: Diego Turrini discussed how instabilities due to planetary growth affect both the planets, their migration, and the evolution of young protoplanetary disks. Other talks (Winter, Guarcello) discussed very recent results on the formation of protoplanetary disks in the context of cluster formation, and highlighted the role of different competing mechanisms (photoevaporation, encounters) on the survival of protoplanetary disks.
- i) Session: Numerical code developments: Jim Stone presented very recent advancements of the code Athena++. Ake Nordlund discussed DISPATCH, a new platform for performing very large simulations in the exa-scale era. The code was made public immediately after Ake's talk. Maya Petkova and Bert Vandenbroucke presented the radiative transfer code Maclonize which couples Monte Carlo radiative transfer with hydrodynamics.

2 RADIO NET RELEVANCE

Many of the observational results that were presented in the conference were obtained with RadioNet infrastructure. Example of these include the APEX radiotelescope (the ATLASGAL survey, talk of D. Elia; the 350 micron observations of the filament NGC 6334 by ArTemi/APEX, talk by P. Andre and of RCW 120, talk by Annie Zavagno), the IRAM-30 meter telescope (the EMPIRE survey; talk of Diane Cormier; the Hi-GAL selected clumps observed with the IRAM telescope, talk of Alession Traficante; The CALPSO projects, talk by Mathilde Gaude; The chemical structure of the core L1521E; Poster by Zsofia Nagy), IRAM Noema (talk by Aida Ahmadi on the fragmentation of massive cores; Observations of Cygnus-X, talk of Sylvain Bontemps).

The vast majority of numerical simulations presented and discussed in the conference, which use a variety of numerical codes for solving the equations of hydrodynamics and radiative transfer offer the material for efficient and interesting comparisons between theoretical models/numerical simulations and observations. The links on where to find these codes and how to use them were provided in the speakers talks.

3 IMPACT

The conference has provided all current and potential RadioNet users with an exposure to some of the most recent results and developments in the field of star formation. The rich program of the conference and the dedicated time allocated for discussion for each scientific session has allowed for an in depth exchange of ideas and suggestions for future development between the participants and in particular between observers and theorists.



4 AGENDA OF THE EVENT

DAY 1, SUNDAY JUNE 9, 2019

19:30 - **REGISTRATION AND WELCOME RECEPTION AT NAFPLIA PALACE HOTEL & VILLAS**

DAY 2, MONDAY JUNE 10, 2019

08:00-08:45 **REGISTRATION**

08:45-09:00 **WELCOME BY THE ORGANIZERS**

SESSION I -- THE LIFE AND WORKS OF AKE NORDLUND (CHAIR: SAMI DIB)

09:00-09:30 **UFFE JORGENSEN (I) - THE CAREER OF AKE NORDLUND**

SESSION II -- GALACTIC SCALE STAR FORMATION (CHAIR: YURI FUJII)

09:30-10:00 **DAVIDE ELIA (I) -- STAR FORMATION ACROSS THE WHOLE MILKY WAY: THE ROLE OF GALACTIC PLANE SURVEYS**

10:00-10:30 **DIANE CORMIER (I) -- COLD GAS IN NEARBY GALAXIES [SLIDES]**

10:30-11:00 **POSTER SESSION - COFFEE BREAK**

11:00-11:30 **EVE OSTRIKER (I) -- STAR FORMATION REGULATION: FROM CLOUDS TO THE COSMOS [SLIDES]**

11:30-11:45 **CECILIA BACCHINI -- VOLUMETRIC STAR FORMATION LAWS OF DISC GALAXIES**

11:45-12:00 **THALES GUTCKE -- SIMULATING THE METALLICITY-DEPENDENT IMF [SLIDES]**

12:00-12:15 **TIM-ERIC RATHJEN -- THE STRONG IMPACT OF COSMIC RAYS ON THE STRUCTURE OF THE ISM AND OUTFLOWS [SLIDES]**

12:15-12:30 **FLORENT RENAUD -- TURBULENCES ?**

12:30-12:45 **ALEXANDER MARCHUK -- GRAVITATIONAL INSTABILITY AND STAR FORMATION IN NGC 628**

12:45-13:00 **SACHA HONY -- PAH EMISSION ACROSS STAR FORMING REGIONS IN THE MAGELLANIC CLOUDS GALAXIES**

13:00-15:30 **LUNCH BREAK**

SESSION III -- MOLECULAR CLOUD FORMATION & PROPERTIES (CHAIR: DAVIDE ELIA)

15:30-16:00 **HUABAI LI (I) -- THE TAI CHI IN STAR FORMATION [SLIDES]**

16:00-16:30 **PAOLO PADOAN (I) -- THE TURBULENT NATURE OF MOLECULAR CLOUDS [SLIDES]**

16:30-16:45 **DI LI -- ABSORPTION PROBES OF DARK MOLECULAR GAS (DMG) [SLIDES]**

16:45-17:00 **MASATO KOBAYASHI -- THE TIME EVOLUTION OF THE MULTIPHASE INTERSTELLAR MEDIUM IN SHOCKED LAYERS [SLIDES]**

17:00-17:30 **POSTER SESSION, - COFFEE BREAK**

17:30-17:45 **FABIO SANTOS -- THE FAR-INFRARED POLARIZATION SPECTRUM OF RHO OPHIUCHI A FROM HAWK+/SOFIA OBSERVATIONS [SLIDES]**

17:45-18:00 **LEIRE BEITIA-ANTERO -- NUMERICAL SIMULATIONS OF MHD WAVE PROPAGATION INTO MOLECULAR CLOUDS [SLIDES]**

18:00-18:15 **CHRISTOPHER WAREING -- MHD SIMULATION OF CLOUD FORMATION BY THE THERMAL INSTABILITY AND CONSEQUENT MASSIVE STAR FEEDBACK [SLIDES]**

18:15-18:30 **DANIEL SEIFRIED -- SIMULATING MOLECULAR CLOUDS AND ITS LINK TO OBSERVATIONS [SLIDES]**

18:30-18:35 **POSTER FLASH PRESENTATIONS: ANDRES IZQUIERDO [TURBULENT STATISTIC OF RESOLVED MOLECULAR CLOUDS IN A GALACTIC POTENTIAL, POSTER], EMILY KOMSACZEWSK SPECTROSCOPIC DIAGNOSTICS OF MID-INFRARED FEATURES OF ISM IN DARK GLOBULE DC 314.8-5.1], ALWIN MAO [IDENTIFYING GAS STRUCTURES AND THEIR CORRELATIONS WITH STAR FORMATION IN ISM DISK SIMULATIONS POSTER], PARICHAY MAZUMDAR [LASMA 13CO(j=3-2) SURVEY OF THE MILKY WAY], JEREMY SCHOLTYS [FILAMENT FORMATION IN MHD TURBULENCE: A PARAMETER STUDY OF MAGNETIC FIELD AMPLITUDE AND TURBULENT FORCING]**

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18:35-19:05 DISCUSSION. MODERATOR: SAMI DIB

19:30-20:30 PUBLIC LECTURE BY DR. DANAE POLYCHRONI AT THE CENTRE FOR HELLENIC STUDIES/NAFPLIO

DAY 3, TUESDAY JUNE 11, 2019

SESSION IV -- MOLECULAR CLOUD FRAGMENTATION, FILAMENTS/CORES, CMF/IMF (CHAIR: DI LI)

09:00-09:30 PHILIPPE ANDRE (I) – FRAGMENTATION OF MOLECULAR CLOUDS, FILAMENTS, THE CORE MASS FUNCTION AND THE ORIGIN OF THE IMF [SLIDES]

09:30-09:45 DARIO COLOMBO – THE RESOLVED PROPERTIES OF THE MOLECULAR CLOUDS IN THE INNER AND OUTER GALAXY [SLIDES]

09:45-10:00 DORIS ARZOUMANIAN – FILAMENT AND SHEET-LIKE CLOUD INTERACTION: HINT TO UNDERSTAND THE HISTORY OF STAR FORMATION [SLIDES]

10:00-10:15 DANA ALINA – INTERSTELLAR MAGNETIC FIELDS AND FILAMENTS HOSTING COLD CLUMPS [SLIDES]

10:15-10:30 KATE PATTLE – THE JCMT BISTRO SURVEY: VARIATION OF MAGNETIC FIELD AND GRAIN ALIGNMENT PROPERTIES WITHIN THE OPHIUCHUS MOLECULAR CLOUD [SLIDES]

10:30-11:00 POSTER SESSION - COFFEE BREAK

11:00-11:30 TROELS HAUGBOELLE (I) – FROM CLOUDS TO STARS, A TURBULENT STORY

11:30-12:00 PATRICK HENNEBELLE (I) – WHAT SETS THE INITIAL MASS FUNCTION OF STARS

12:00-12:15 ALESSIO TRAFICANTE – FROM CLOUDS TO CLUMPS: MULTI-SCALE DYNAMICS IN 70 MICRON QUIET-STAR FORMING REGIONS

12:15-12:30 THOMAS NONY – THE IMF ORIGIN AND EPISODIC ACCRETION CONSTRAINED BY A RICH CLUSTER OF MASSIVE CORES AND OUTFLOWS [SLIDES]

12:30-12:45 RACHEL SMULLEN – THE HIGHLY VARIABLE TIME EVOLUTION OF CORES [SLIDES]

12:45-13:00 MARCO LOMBARDI – STAR FORMATION IN NEARBY MOLECULAR CLOUDS [SLIDES]

13:00-15:30 LUNCH BREAK

SESSION V -- LOW MASS STAR FORMATION, DISKS, NON-IDEAL MHD EFFECTS (CHAIR: DIEGO TURRINI)

15:30-16:00 SARAH SADAVOY – FROM CORES TO DISKS: TRACING PROTOSTARS, DISKS, AND MAGNETIC FIELDS WITH HIGH RESOLUTION OBSERVATIONS (I)

16:00-16:30 KENGO TOMIDA (I) – FORMATION AND EARLY EVOLUTION OF CIRCUMSTELLAR DISKS [SLIDES]

16:30-16:45 MATHILDE GAUDEL – ANGULAR MOMENTUM PROPERTIES OF YOUNG PROTOSTELLAR ENVELOPES FROM THE CALYPSO SURVEY

16:45-17:00 KAZUKI TOKUDA – A DETAILED ALMA STUDY OF AN EARLY STAGE OF PROTOSTAR FORMATION IN A HIGHLY DYNAMICAL DENSE CORE

17:00-17:30 POSTER SESSION, - COFFEE BREAK

17:30-17:45 YU-QING LOU – SOLUTION TO THE LUMINOSITY PROBLEM IN STAR FORMATION

17:45-18:00 MICHAEL KUEFFMEIER – ZOOMING IN PROTOSTELLAR FORMATION [LINK]

18:00-18:15 SAYANTAN AUDDY – COLUMN DENSITY PDFs AS AN INDIRECT TRACER OF MAGNETIC FIELDS IN MOLECULAR CLOUDS [SLIDES]

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18:15-18:30 KORALJKA MUZIC – BROWN DWARF FORMATION ACROSS ENVIRONMENTS [[SLIDES](#)] **18:30-18:45** POSTER FLASH PRESENTATIONS: VICTOR ALEMNDROS ABAD [THE (SUB)STELLAR CONTENT OF THE MASSIVE YOUNG CLUSTER NGC 2244], HUEI-RU VIVIEN CHEN [FILAMENTARY ACCRETION FLOWS IN THE IRDC M17 SWEX], ELEONORA FIORELLINO [A CENSUS OF DENSE CORES IN THE SERPENS REGION FROM THE HERSCHEL GOULD BELT SURVEY [POSTER](#)], DAVID GUSZEJNOV [IS IT POSSIBLE TO RECONCILE EXTRAGALACTIC IMF VARIATIONS WITH A UNIVERSAL MILKY WAY IMF], EKTA SHARMA [MOLECULAR FILAMENT FORMATION AND FILAMENT-HUB INTERACTION: LDN 1172/1174 DARK NEBULA], YA-WEN TANG [GRAVITY, MAGNETIC FIELD, AND TURBULENCE: RELATIVE IMPORTANCE AND IMPACT ON FRAGMENTATION IN THE INFRARED DARK CLOUD G34.43, [POSTER](#)], JIAERKEN YESHENGBIKE [LARGE SCALE H₂CO MAPPING OBSERVATION TO PERSEUS MOLECULAR CLOUD], ASMITA BHANDARE [CORE AND DISK PROPERTIES: FROM LOW- TO HIGH-MASS STAR FORMATION], KOKI HIGUCHI [MHS EFFECTS IN LOWER METALLICITY STAR FORMATION], MARCIN KUPILAS [SHOCKING INTERACTIONS WITH INHOMOGENEOUS CLOUDS], CHANG WON LEE [STUDY ON THE FORMATION OF POSSIBLE PRECURSORS OF PROTO-BROWN DWARFS: L328-IRS AND OTHERS], ZSOFIA NAGY [THE CHEMICAL STRUCTURE OF THE STARLESS CORE L1521E], CYNTHIA SAAD [STAR FORMATION WITH COSMOLOGICAL INITIAL CONDITIONS], ANTOINE VERLIAT [DISK FORMATION BY ASYMMETRICAL GRAVITATIONAL COLLAPSE], JAMES WURSTER [PROTOSTAR AND DISK FORMATION WITH NON-IDEAL MAGNETOHYDRODYNAMICS [POSTER](#)]

18:45-19:15 DISCUSSION. MODERATOR: SHANTANU BASU

DAY 4, WEDNESDAY JUNE 12, 2019

SESSION VI -- SOLAR/STELLAR PHYSICS, CONNECTIONS TO STAR FORMATION (CHAIR: DORIS ARZOUMANIAN)

08:45-09:15 BENGT GUSTAFFSON (I) – WHAT DOES THE SOLAR COMPOSITION TELLS US ABOUT STAR FORMATION

09:15-09:45 THOMAS NORDLANDER (I) – NEW LIGHT ON METAL POOR STARS [[SLIDES](#)]

09:45-10:00 ANISH AMARSI – ACCURATE ELEMENTAL ABUNDANCES IN STARS

10:00-10:15 SALVATORE COLOMBO – RADIATIVE ACCRETION SHOCKS IN CLASSICAL T TAURI STARS

10:15-10:30 SERGIO DZIB – ZOOMIN IN TO YOUNG BINARY STARS WITH VLBI AND MEASURING THEIR DYNAMICAL MASSES

10:30-10:45 NINO KOCHIASHVILI – LBVS AND STAR FORMING REGIONS IN THE MILKY WAY [[SLIDES](#)]

10:45-11:00 MAURICIO TAPIA – MOL 12: THE STRANGE CASE OF A NEW PROTOSTELLAR ECLIPSING SYSTEM

11:00-11:15 RAUL JIMENEZ – UNDERSTANDING THE UNIVERSE: WHAT WOULD BE THE NEXT DISRUPTION ? THE TOLE OF (ACCURATELY) MODELING STARS

11:15-11:17 POSTER FLASH PRESENTATION: MARIO GUARCELLO [SIMULTANEOUS OPTICAL AND X-RAY VARIABILITY IN THE STARS WITH DISKS IN NGC 2264 [POSTER](#)], NICOLAS MEDINA [IRREGULAR IR VARIABILITY ON G305 MASSIVE STAR-FORMING REGION]

12:00-19:30 EXCURSIONS

20:30- CONFERENCE DINNER AT RESTAURANT FOUGARO

DAY 5, THURSDAY JUNE 13, 2019

SESSION VII -- HIGH MASS STAR FORMATION -- EARLY PHASES, INDIVIDUAL OBJECTS (CHAIR: DIMITRIS STAMATELLOS)

09:00-09:30 SYLVAIN BONTEMPS (I) – HIGH-MASS STAR FORMATION: THE OBSERVER POINT OF VIEW [[SLIDES](#)]

09:30-10:00 ROLF KUIPER (I) – FORMATION OF THE MOST MASSIVE STARS [[SLIDES](#)]

10:00-10:15 JORDAN MOLET – CHARACTERIZATION OF THE BEST HIGH-MASS PRESTELLAR CORE CANDIDATE FOUND SO FAR [[SLIDES](#)]

10:15-10:30 ADAM GINSBURG – MEASURING HIGH-MASS PROTOSTAR MASSES WITH DISKS

10:30-11:00 POSTER SESSION - COFFEE BREAK

11:00-11:15 NANDA KUMAR – HUB-FILAMENT PARADIGM AND HIGH-MASS STARS

11:15-11:30 PATRICK KOCH – ZOOMING IN: MAGNETIZED DISK IN THE HIGH-MASS SYSTEM W51 [[SLIDES](#)]

11:30-11:45 JOHAN VAN DER WALT – MASERS AND HIGH-MASS STAR FORMATION [[SLIDES](#)]

11:45-12:00 AIDA AHMADI – DISK KINEMATICS AND FRAGMENTATION IN HIGH-MASS STAR FORMATION [[SLIDES](#)]

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12:00-12:15 IGOR ZINCHENKO [EPISODIC ACCRETION AND OUTFLOWS IN THE S255IR HIGH MASS STAR-FORMING REGION [SLIDES](#)]
12:15-12:30 WILLICE OBONYO – MASSIVE PROTOSTELLAR JETS

12:30-12:35 POSTER FLASH PRESENTATIONS: BECKY ARNOLD [QUANTIFYING VELOCITY STRUCTURE IN STAR FORMING REGIONS [POSTER](#)], YUKO MATSUSHITA [DETECTED BOTH OUTFLOW AND JET SOURCE: MMS 5/ OMC-3 REVEALED WITH ALMA], PAOLO PERSI [INFRARED IMAGING OF HIGH-MASS YOUNG STELLAR OBJECTS], JIANJUN ZHOU [SPATIAL VARIATIONS OF CHEMICAL PROPERTIES IN MASSIVE STAR FORMING REGIONS]

12:35-13:00 DISCUSSION. MODERATOR MAURICIO TAPIA

13:00-15:30 LUNCH BREAK

SESSION VIII -- STELLAR CLUSTERS, MASSIVE STARS IN CLUSTERS, STELLAR FEEDBACK (CHAIR: KORALJKA MUZIC)

15:30-16:00 ANNIE ZAVAGNO (I) – IONIZED REGIONS AND STAR FORMATION [SLIDES](#)
16:00-16:30 RICHARD WUNSCH (I) – MULTIPLE STELLAR POPULATIONS IN GLOBULAR CLUSTERS FROM WINDS OF MASSIVE STARS [SLIDES](#)

16:30-16:45 MORTEN ANDERSEN [THE FORMATION OF MASSIVE STAR CLUSTERS [SLIDES](#)]
16:45-17:00 ZEINAB KHORRAMI [THE IMF IN YOUNG MASSIVE STAR CLUSTERS]

17:00-17:30 POSTER SESSION - COFFEE BREAK

17:30-17:45 CHRISTINE ALLEN [EXTREMELY SHORT DYNAMICAL LIFETIMES OF YOUNG MASSIVE STELLAR GROUPS [SLIDES](#)]
17:45-18:00 JAKOB WARD [NOT ALL STARS FORM IN CLUSTERS: MEASURING THE KINEMATICS OF OB ASSOCIATIONS WITH GAIA]

18:00-18:15 ANNA ROSEN [A MASSIVE STAR IS BORN: HOW STELLAR FEEDBACK LIMITS ACCRETION ONTO MASSIVE STARS]
18:15-18:30 JEONG-GYU KIM [DISPERSION OF GIANT MOLECULAR CLOUDS BY UV RADIATION FEEDBACK FROM MASSIVE STARS]

18:30-18:35 POSTER FLASH PRESENTATIONS: SOPIA BERADZE [POSSIBLE CONNECTION BETWEEN P CYGNI AND NEIGHBORING OPEN CLUSTERS], REBEKA BOGNER [PRE- AND PROTOSTELLAR CORES IN THE ROSETTE NEBULA], EMMANUEL BRATSOLOS [THE REGION N83-84-85 OF THE SMC: POSSIBLE SUPERNOVA EXPLOSIONS AND TRIGGERED STAR FORMATION [POSTER](#)], ALEJANDRO GONZALEZ-SAMANIEGO [HOW FEEDBACK FROM MASSIVE STARS SHAPES THE FORMATION AND EVOLUTION OF STELLAR CLUSTERS], SARAH JAFFA [SIMULATING YOUNG MASSIVE CLUSTERS], NINA SARTORIO [THE EFFECT OF PHOTOIONIZATION FEEDBACK IN DISKS OF FORMING MASSIVE CLUSTERS]

18:35-19:05 DISCUSSION. MODERATOR: PATRICK HENNEBELLE

DAY 6, FRIDAY JUNE 14, 2019

SESSION IX -- PLANET/SOLAR SYSTEM FORMATION (CHAIR: ANNA ROSEN)

09:00-09:30 DIEGO TURRINI – GIANT PLANETS AND PLANETESIMALS: MAKING AN IMPACT ON THE COMPOSITION OF PLANETARY SYSTEMS (I)
09:30-10:00 JONATHAN TAN –INSIDE-OUT PLANET FORMATION (I)

10:00-10:15 MARIO GUARCELLO [PHOTOEVAPORATION AND CLOSE ENCOUNTERS: HOW THE ENVIRONMENT AFFECTS THE EVOLUTION OF PROTOPLANETARY DISKS [SLIDES](#)]
10:15-10:30 ANDREW WINTER [LINKING GALACTIC SCALE STAR FORMATION TO PLANET FORMATION [SLIDES](#)]

10:30-11:00 POSTER SESSION - COFFEE BREAK

11:00-11:30 YURI FUJII (I) [RADIATION HYDRODYNAMIC SIMULATIONS OF THE FORMATION OF CIRCUMPLANETARY DISKS [SLIDES](#)]
11:30-11:45 DIMITRIS STAMATELLOS [PLANET FORMATION BY DISC FRAGMENTATION AROUND M DWARFS [SLIDES](#)]
11:45-12:00 KEVIN BAILLIE [BUILDING THE MINIMUM MASS SOLAR NEBULA [SLIDES](#)]

12:00-12:15 MARTIN PESSAH [STREAMING INSTABILITY FOR PARTICLE-SIZE DISTRIBUTIONS [SLIDES](#)]
12:15-12:30 SIN-ITI SIRONO [CHONDRULE FORMATION THROUGH COLLISIONS OF PLANETESIMALS CONTAINING VOLATILE MATERIAL]

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12:30-12:31 POSTER FLASH PRESENTATION: ANDRIUS POPOVAS [PLANET FORMATION: THE ROLES OF PEBBLE ACCRETION, RADIATIVE AND CONVECTIVE ENERGY TRANSPORT]

12:31-12:46 RAPHAEL-MIGNON RISSE (BELONGS TO SESSION X) -- HYBRID RADIATIVE TRANSFER FOR MASSIVE PRESTELLAR CORE COLLAPSE [SLIDES]

12:46-13:15 DISCUSSION. MODERATOR: TROELS HAUGBOELLE

13:15-15:30 LUNCH BREAK

SESSION X -- ADVANCES IN CODE DEVELOPMENT FOR ASTROPHYSICAL FLUID DYNAMICS (CHAIR: SAMI DIB/DANAE POLYCHRONI)

15:30-16:00 JIM STONE (I) – USING ATHENA++ TO STUDY STAR FORMATION [SLIDES]

16:00-16:30 AKE NORDLUND – TASK BASED COMPUTING WITH THE DISPATCH CODE FRAMEWORK (I)

16:30-16:45 JON RAMSEY – DISPATCH: A NUMERICAL SIMULATION FRAMEWORK FOR THE EXA-SCALE ERA. APPLICATIONS AND ADVANTAGES.

16:45-17:15 POSTER SESSION - COFFEE BREAK

17:15-17:30 MAYA PETKOVA – COMBINING SPH AND MCRT FOR THE STUDY OF IONISING STELLAR FEEDBACK [SLIDES]

17:30-17:45 BERT VANDENBROUCKE [THE MONTE-CARLO RADIATION HYDRODYNAMICS CODE CMAcIONIZE: SUMMARY AND RECENT DEVELOPMENTS SLIDES]

17:45-17:46 POSTER FLASH PRESENTATION: OLIVER LOMAX [FFTRAY: A CONVOLUTION-BASED ALGORITHM FOR RADIATIVE TRANSFER CALCULATIONS]

17:46-18:15 DISCUSSION. MODERATOR: KENGO TOMIDA

18h15:18:30 WHAT DO WE KNOW AND FUTURE CHALLENGES: AKE NORDLUND

5 PARTICIPANTS

The conference attracted 118 active researchers from all around the world. The attendees work in various institutions located in 31 different countries. The breakdown of the number of participants by country is the following: Germany (15), France (15), United Kingdom (11), United States (10), Italy (9), Japan (7), Denmark (5), Taiwan (5), Portugal (4), P.R. China (4), Spain (3), Sweden (3), Greece (3), Mexico (3), Canada (2), Chile (2), Georgia (2), Russia (2), The Netherlands (1), Czech republic (1), Poland (1), Kazakhstan (1), Lebanon (1), South Korea (1), Hong Kong (1), South Africa (1), Australia (1), Brazil (1), Norway (1), India (1), Hungary (1). More than half of the participants (69) were early career researchers (Ph.D candidates and postdocs) and 35% of the participants (41) were female scientists.

The funding from RadioNet enabled the organizers to invite 4 speakers from Europe (3 with an invited talk, and 1 with a contributed talk), one speaker from Hong Kong, and one speaker from the United States.

6 RADIO.NET NEWSLETTER

Participants were asked after the event by mail whether they would like to subscribe to the newsletter. Information about this is being collected now.

7 RADIO.NET FINANCIAL CONTRIBUTION

The financial support from RadioNet was awarded to facilitate the attendance of a selected speakers (mostly invited speaker).

8 PUBLICATIONS

CONFIRMATION: THE ORGANISERS OF THIS EVENT CONFIRM THAT RADIO.NET IS ALLOWED TO PUBLISH THE REPORT.

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RadioNet has received funding from the EU's Horizon 2020 research and innovation programme under the grant agreement No 730562