Activity Report of Commission J
September 25, 2017 to July 11, 2018

July 11, 2018

Kenta Fujisawa (Yamaguchi University)

ALMA project

- Latest scientific topics from ALMA press release (May 17, 2018)

ALMA Finds Oxygen 13.28 Billion Light-Years Away - Most Distant Oxygen Indicates Mature Nature of a Young Galaxy

Astronomers detected a faint but definite signal of oxygen in a galaxy located 13.28 billion light-years away from us, through observations using the Atacama Large Millimeter/submillimeter Array (ALMA). Breaking their own records, this marks the most distant oxygen ever detected in the Universe. Referencing infrared observations, the team determined that star formation in the galaxy started at an unexpectedly early stage; 250 million years after the Big Bang.

This image shows the galaxy cluster MACS J1149.5+2223 taken with the NASA/ESA Hubble Space Telescope and the inset image is the galaxy MACS1149-JD1 located 13.28 billion light-years away observed with ALMA. Here, the oxygen distribution detected with ALMA is depicted in green.

Credit: ALMA (ESO/NAOJ/NRAO), NASA/ESA Hubble Space Telescope, W. Zheng (JHU), M. Postman (STScI), the CLASH Team, Hashimoto et al.

Activities of meetings

- **Workshop “Star formation with ALMA: Evolution from dense cores to protostars”**
  Date : 2017/10/ 26
  Location : National Astronomical Observatory of Japan, Mitaka

- **15th Mizusawa VLBI observatory Users’ Meeting.**
  Date : 2017/11/3-4
  Location : Conference Room, Mizusawa Kita Hotel

- **East Asian ALMA Science Workshop 2017**
  Date : 2017/11/27-29
  Location : Korea Astronomy and Space Science Institute, Daejeon, Republic of Korea

- **2nd SKA Workshop for Technology**
  Date : 2017/12/18
  Location : Kagoshima University

- **NAOJ Science Meeting “A Role of Magnetic Field in Star Formation and Galactic Structure”**
  Date : 2017/12/20-22
  Location : Kagoshima University

- **VLBI Consortium Symposium 2017**
  Date : 2017/12/23-25
  Location : Teikyo University of Science

- **2017 ALMA/45m/ASTE Users Meeting**
  Date : 2017/12/26-27
  Location : National Astronomical Observatory of Japan, Mitaka

- **Workshop “An overview of achievements and future of radio astronomy”**
  Date : 2017/12/28
  Location : University of Tokyo, Institute of Astronomy

- **The 5th Workshop for Supermassive Black Hole**
  Date : 2018/1/8-9
  Location : Tohoku University, Katahira

- **Workshop “Star formation with ALMA: Evolution from dense cores to protostars”**
  Date : 2018/1/17-18
  Location : I-site Namba (Osaka prefecture university)

- **ALMA Star Workshop : What can we really do with ALMA?**
  Date : 2018/1/18-19
  Location : Tohoku University, Aobayama

- **Workshop on Proto-planetary Disk**
  Date : 2018/2/1
  Location : National Astronomical Observatory of Japan, Mitaka

- **Workshop for Science Cases with Takahagi/Hitachi 32m Radio Telescopes**
  Date : 2018/2/20-21
  Location : Ibaraki University

- **18th millimeter/sub-millimeter receiver workshop**
  Date : 2018/2/22-23
  Location : National Astronomical Observatory of Japan, Mitaka

- **Science Workshop 2018 on FUGIN: The Galactic Plane Legacy Survey for Molecular Clouds**
  Date : 2018/2/26-27
  Location : Nagoya University

- **Workshop on the Solar System Science with ALMA**
  Date : 2018/3/7-8
  Location : National Astronomical Observatory of Japan, Mitaka

- **Radio Astronomy Forum of Japan Symposium FY2017 “Development of New Observation Technology”**
  Date : 2018/3/19-20
  Location : National Astronomical Observatory of Japan, Mitaka

- **Workshop for High Mass Star Formation 2018 “High Spatial/Time Resolution Observation for the Study of High Mass Star Formation”**
  Date : 2018/3/22-23
  Location : Yamaguchi University

- **Workshop on the Antarctica 30m THz Telescope**
  Date : 2018/3/27
  Location : Tsukuba University

- **Workshop "Star Formation Triggered by Cloud-Cloud Collision"**
  Date : 2018/5/28-29
  Location : Nagoya University

- **The Power of Faraday Tomography: towards 3D Mapping of Cosmic Magnetic Fields**
  Date 2017/5/28-06/2
  Location : Seagaia Resort, Miyazaki