

Formation of Stars and Massive Clusters in Dwarf Galaxies Over Cosmic Time

18 – 22 February 2019@Oort

The scientific organizing committee is pleased to write this summary on the Lorentz Center workshop we organized titled "Formation of Stars and Massive Clusters in Dwarf Galaxies Over Cosmic Time." The organizers were happy to have 45 different scientists participating in our workshop. It was a wonderfully interactive and stimulating meeting, with a wide variety of scientific backgrounds, views, and expertise represented. While the majority of our participants were from Europe, 15 participants came from the United States, Canada, or Brazil. The senior/junior participant mix was 30/15, and the male/female participant mix was 30/15.

As evidenced by the poll the Lorentz Center did of the participants of the meeting, most participants felt the meeting went very well. To list a few metrics, 16 out of 17 ranked the scientific quality of the meeting high or very high, 15 out of 17 stated that the scientific value of the meeting to them was high or very high, 12 out of 17 felt it would lead to new collaborations, and 15 out of 17 felt it would lead them to pursue new lines of research. In terms of specific feedback the participants made, we received much positive feedback from participants, with one participant writing: "I would like to thank you for the great workshop. It has been very instructive for me, with a pleasant and constructive atmosphere, and many stimulating discussions. Thanks for having organized it and having given me the opportunity to participate!"

In terms of constructive feedback, several participants remarked that the workshop would have done better to have included more unstructured time so that participants could engage with other participants themselves, and the organizers agree with this general sentiment. Another concern expressed by a participant was that half of the participants were members of the same extended collaboration, to the exclusion of other teams. While the organizers agree that increased diversity would have been good, the meeting suffered from about 25% of invited participants cancelling in the 6 weeks just preceding the meeting – significantly hurting the diversity of the participant pool. Given efforts by the SOC and the chair of the SOC to reach out broadly to a wide variety of different groups working on the topic of the meeting, we do not share the participant's opinion that competing teams were intentionally excluded.

One encouraging outcome of the meeting was a plan to collaborate on full forwards-modeling simulation project of the Hubble Frontier Fields observations using at least a few of the different globular cluster formation models, including the E-MOSAICS simulation and a separate globular cluster formation model being led by Oleg Gnedin, Nick Choksi, and collaborators. There was a general agreement that some participants from the meeting (including a postdoc in Leiden, Bruno Ribeiro) would work with members of E-MOSAICS team to pursue this project. Participant Ivan Cabrera Ziri also specifically expressed interest in becoming involved with this initiative.

A second concrete outcome of the workshop was that at least one new paper was written based on the preparation and discussions that took place at the meeting. This was the fivepage single author paper led by Diederik Kruijssen, who was inspired to write the paper based on the invited review talk he was asked to give on Friday, the last day of the meeting. The paper had the title: "The minimum metallicity of globular clusters and its physical origin – implications for the galaxy mass-metallicity relation and observations of proto-globular clusters at high redshift." It was submitted on March 17, less than 4 weeks after the end of the meeting, and includes the acknowledgement: "JMDK thanks the participants of the Lorentz Center workshop 'Formation of Stars and Massive clusters in Dwarf Galaxies over Cosmic Time' (February 18–22, 2019) and particularly the SOC chair, Rychard Bouwens, for inspiring discussions that led to the development of this work".

Angela Adamo (Stockholm, Sweden)

Nate Bastian (Liverpool, UK)

Rychard Bouwens (Leiden, Netherlands)

Bruce Elmegreen (Yorktown Heights, USA)
Tim Heckman (Baltimore, USA)
Daniel Weisz (Berkeley, USA)