

Press Information

ETH Zurich at the EuroScience Open Forum Manchester 2016

Exploring the final frontier

Zurich, 6 July 2016

Known as the "dark ages," the first billion years of the universe are the final frontier of Astrophysics. Professor Kevin Schawinski studies the co-evolution of galaxies and supermassive black holes not only with the support of his own research group at ETH Zurich, but also thousands of volunteer Citizen Scientists.

It is during the first billion years of the universe that structures of dark matter assembled and the first stars were born forming primordial galaxies containing the 'seeds' of supermassive black holes. Space telescopes, such as *Hubble* and *Chandra*, barely scratch the surface of this ancient epoch of the universe as galaxies, like our own Milky Way, started their evolutionary journey. Kevin Schawinski, ETH Zurich – the Swiss Federal Institute of Technology - along with experts from academia and the media will be speaking in two EuroScience Open Forum (ESOF) sessions.

In his first session, "*Society as a collaborator, science as a benefactor*" on July 26th, Schawinski joins a panel that includes a member of the European Space Agency and an award winning science journalist from the Mail and Guardian, South Africa to explore the frontier of Citizen Science and the influence of women in core scientific fields.

In his second session, "*Looking back to the first billion years of the Universe*" scheduled for July 27th, Schawinski, along with fellow academics John Pritchard, Imperial College London and Brooke Simmons, Einstein Fellow at University of California, San Diego, presents the latest research on the early universe and outlines what Hubble's successors, NASA's *James Webb Space Telescope* (JWST) and the Square Kilometer Array (SKA) may discover.

Citizen scientists classify a million galaxies

As science increasingly permeates our lives via online learning and social media, the collaboration between scientist and citizen has become a powerful tool. Not only is Schawinski a professor of the Astrophysics of Galaxies and Black Holes at ETH Zurich, but he also co-Founded Galaxy Zoo – arguably the world's best-known citizen science project that engaged more than 250,000 people in classifying a million galaxies over 50 million times. At ESOF, Schawinski will team-up with experts from academia and journalism to explore society's growing expectation for research news, transparency, and direct engagement. Citizen science, social media, and even pop culture will be among the topics that

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drive the discussion. Looking specifically at women in the fields of Science, Technology, Engineering and Mathematics (STEM), the panel will address the question, "How can science promote growth, fair employment, and personal well-being."

Missing black holes?

Can we understand how the first black holes – 'seed' black holes formed at the centres of primeval proto-galaxies? In his second session, Kevin Schawinski will shed some light on the latest observations and why there are now more questions than answers. Schawinski's team, led by his then Master's student and now doctoral researcher, Anna Weigel used the deepest X-ray and optical observations in an attempt to identify the earliest signals of the first black holes in the early universe. They systematically surveyed over 700 growing supermassive black holes using observations from telescopes, including *Hubble*, to uncover the earliest signs and signals of an emerging black hole — the "missing seeds." An exhaustive search yielded no evidence of any developing black holes in the early universe, giving rise to a new and, perhaps, more important research question, "Where and how were the first black holes really formed?"

Further information

Videos

[Black Holes: The last frontier](#) →

[Big Data: Citizen Science](#) →

ESO Sessions

[Looking back to the first billion years of the Universe](#) →

[Society as a collaborator, science as a benefactor](#) →

Articles and scientific publications

[A jettisoned black hole?](#) →

[The systematic search for \$z \gtrsim 5\$ active galactic nuclei in the Chandra Deep Field South](#) →

Web resources

[ETH Zurich – Galaxy and Black Hole Astrophysics](#) →

[Biographical information on Kevin Schawinski](#) →

www.galaxyzoo.org →

www.zooniverse.org →

Contacts

Prof. Dr. Kevin Schawinski
Institute for Astronomy
Phone: +41 44 633 07 51
kevin.schawinski@phys.ethz.ch

ETH Zurich
Marianne Lucien
International Communications Officer
marianne.lucien@hk.ethz.ch