Contribution ID: **224** Type: **Talk**

Jets and winds from super-critical accreting black holes

Monday 7 December 2015 16:56 (21 minutes)

Determining the power output and efficiency of accreting black holes is a fundamental astrophysical problem: we want to know the relation between mass accretion rate, radiative output (photons) and mechanical output (kinetic energy of jets and winds). We focus in particular on off-nuclear black holes that are accreting from a donor star at a rate near or above the critical Eddington limit. Many of them appear as "ultraluminous X-ray sources", evidence of their high radiative output. But how much additional power is carried by winds and jets?
To answer this question, we studied a sample of powerful black holes associated with large bubbles of shock-ionized and/or photo-ionized gas. We used the bubbles as calorimeters to measure the power injected by the black hole into its surroundings. We find that black holes at super-Eddington accretion rates can have a mechanical power comparable to their radiative luminosity. Our study provides empirical constraints for theoretical models of super-Eddington accretion, and for models of black hole feedback in the early universe.

Author: Dr SORIA, Roberto (ICRAR-Curtin University)

Co-authors: Dr MOTCH, Christian (University of Strasbourg); Dr GRISE', Fabien (University of Strasbourg); Dr MILLER-JONES, James (ICRAR-Curtin University); Prof. PAKULL, Manfred (University of Strasbourg)

Presenter: Dr SORIA, Roberto (ICRAR-Curtin University)

Session Classification: 14 - Disks and jets