Observations and Theory of Quasar Outflows

6 – 10 March 2017 Lorentz Center@Snellius

Active Galaxies drive powerful outflows to outer regions of their host galaxies. There is nowadays a realm of data that is revealing new aspects of the Quasar outflow phenomenon that are not completely covered by theoretical work, and that prompts for a more complete synergy between experts on observational data and theorists. The goal of this workshop was to bring together key experts on AGN outflows and to foster fruitful interaction between the two communities. The workshop was also intended to bring together experts in multi-band observations of Quasar outflows so to avoid that relevant results and open issues stay confined within a single-wavelength community. The following open questions were discussed:

- observational tests of energy conserving wind models;
- properties of complex soft X-ray ultra-fast outflows;
- feedback in low luminosity AGN;
- coincidence of X-ray and radio outflows;
- physical connection of multi-phase outflows.

The goal of putting in contact experts of contiguous fields was successfully achieved and thanks to the format of the workshop there was plenty of time to communicate not only results, but also doubts and problems on particular aspects regarding the state of the art in the Quasar outflows field. Fundamental questions have continuously arisen and people discussed them very enthusiastically. In terms of “Aha” moments, we noticed that experts in theory were positively impressed by discovering in observers’ talks that their theoretical models were employed to explain a certain data set. We also noticed that the possibility to detect signatures of shocked outflows in observations of compact radio jets sparked great interest and was intensively discussed during the last 2 days of the workshop.

Along the 4 days, 5 sessions were organized to cover the main topics. Each participant gave a talk and at the end of each session a general summary/discussion was led by 2 designated participants who introduced a short presentation illustrating questions and issues that were prompted by talks throughout the session. The schedule of the workshop was kept very flexible and the discussion flow after each presentation was not interrupted unless strict time limitation forced to do so (e.g. lunch time, social dinner), so that everybody who had something to say about a certain topic was free to share his/her view before all audience. Talks could be postponed if discussion was particularly active at chair people discretion. In this way we guaranteed a lively and informal flow of ideas without being tied to a strict schedule. This feature was highly liked by all participants, many of which explicitly told organizers that this was one of the best workshop they attended because the small size (~30 people), the variety of expertises and the free format actually allowed scientific discussion to dig deeper into questions and, at the same time, interaction with experts to be easier and informal, especially for junior participants. People also enjoyed very much the possibility of having their own space and office and several splinter meetings took place during which observing proposals, scientific papers and future collaborations have been discussed. I am personally aware of at least two observing proposals that were discussed and planned during the workshop: one successful proposal to the NOEMA interferometer and another one submitted to HST.