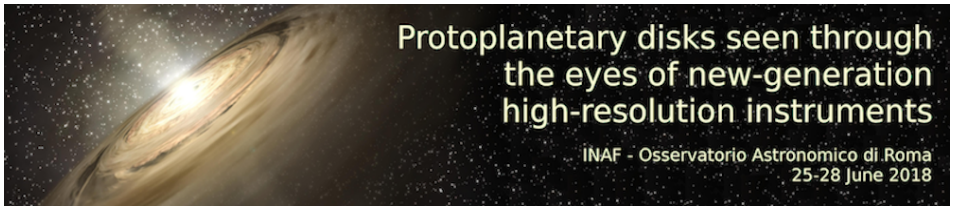

Contribution ID: **35** Type: **Talk**

Protostellar jets: the revolution with ALMA and NOEMA (I)

Monday, 25 June 2018 15:00 (30 minutes)

Fast and collimated molecular jets as well as slower wide-angle outflows are observed since the earliest stages of the formation of a new star, when the protostellar embryo accretes most of its final mass from the dense parental envelope. Early theoretical studies suggested that jets have a key role in this process as they can transport away angular momentum thus allowing the star to form without reaching its break-up speed. However, an observational validation of these theories is still challenging as it requires to investigate the interface between jets and disks on scales of fractions to tens of AUs. For this reason, many questions about the origin and feedback of protostellar jets remain unanswered, e.g. are jets ubiquitous at the earliest stages of star formation? Are they launched by a magneto-centrifugal mechanism as suggested by theoretical models? Are they able to remove (enough) angular momentum? What is the jet/outflow feedback on the forming star-disk system in terms of transported mass/momentum and shock-induced chemical alterations?

The advent of millimetre interferometers such as NOEMA and ALMA with their unprecedented combination of angular resolution and sensitivity are now unraveling the core of pristine jet-disk systems. While NOEMA allows to obtain the first statistically relevant surveys of protostellar jet properties and ubiquity, recent ALMA observations provide the first solid signatures of jet rotation and new insight on the chemistry of the protostellar region. I will review the most recent and exciting results obtained in the field and show how millimetre interferometry is revolutionising our comprehension of protostellar jets.

Presenter: PODIO, Linda

Session Classification: Formation of protostellar disks and jets (chair S. Antoniucci)