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Surface imaging of active stars at the NOT

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Throughout its operation the NOT has offered a valuable resource for studying the spot coverage and surface magnetic fields of late-type active stars. Such stellar surface maps can be constructed from high resolution spectroscopy and spectropolarimetry using the Doppler imaging and Zeeman Doppler imaging methods. These methods provide a uniquely detailed look at the stellar dynamo generated magnetism and act thus as crucial input for constraining theoretical dynamo models. I will present a review of the past and current studies of stellar activity and magnetism using high resolution spectropolarimetry from SOFIN and high resolution spectroscopy from FIES. These include extended longitudinal studies, which make the NOT dataset uniquely valuable, as well as current efforts of using simultaneous TESS photometry to connect the surface magnetic fields to the stellar differential rotation profile.

Primary author: LEHTINEN, Jyri (Finnish Centre for Astronomy with ESO (FINCA))

Presenter: LEHTINEN, Jyri (Finnish Centre for Astronomy with ESO (FINCA))