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Analysis of Self-Calibration Artefacts

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Abstract content
 (Max 300 words)

Calibrating a synthesis array is one of the most challenging aspects in radio astronomy and in many cases, the most important factor in image synthesis. The main aim of this project is to acquire a deep understanding of calibrating artefacts. Current self-calibration methods are known to generate substantial imaging artefacts. These are caused by incomplete sky models and/or calibration errors in amplitude and phase. Here, we are going to use the MeqTrees software to first locate the artefacts and then analyse them. This work will have both theoretical and practical outputs. On the theoretical side, we will develop a better understanding of self-calibration and direction dependent effects (DDE) calibration artefacts, which is extremely important for science projects such as the upcoming MeerKAT surveys. The practical output will be a set of simulations tools that will allow us to predict the artefact and flux suppression level for any given observation.

Apply to be
 considered for a student
 award (Yes / No)?

Yes

Level for award
 (Hons, MSc,
 PhD)?

MSc

Main supervisor (name and email)
and his / her institution

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Would you like to
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No

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