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Probing the role of mergers in galaxy evolution with HI profile asymmetries

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Abstract content
 (Max 300 words)
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Fundamental to understanding the Universe is understanding how galaxies (often referred to as the building blocks of the Universe) form and evolve- this makes galaxy evolution a key research area in astronomy. Common to all theories of galaxy evolution is that galaxies form hierarchically through a series of mergers; smaller bodies merge and interact over time to produce the large structures we see today. Key to probing the role of mergers in galaxy evolution is first being able to identify them. Current techniques include using morphological distortions in the stellar (optical) and gas (radio) components of galaxies to trace merger activity. Studies indicate that neutral hydrogen gas (HI) is the more sensitive diagnostic of merger activity, and furthermore that spatial distortions in HI often correspond to asymmetries in the global HI velocity profile. Here we study HI profile asymmetries of nearby galaxies in close pairs (candidate mergers) in order to assess if it is possible to use global HI velocity profile asymmetries to trace merger activity. Aside from their potential to trace merger activity in both the local Universe and towards higher redshifts with upcoming radio surveys, when used in conjunction with optical morphologies HI profile asymmetries might also enable us to identify interactions on different timescales.

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MSc

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

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