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Marcin Semczuk - Tidally induced warps of spiral galaxies in IllustrisTNG

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Warps are a very common feature of spiral galaxies. According to first Bosma's law (Bosma 1991), at least half of observed spirals have warps present in HI observations. All three massive spirals of the Local Group have warped disks. The frequent occurrence of this feature implies that warps are either long-lived or continuously generated. There are several theories aiming to explain the origin of warps in galactic disks. They often refer to the misalignment between dark halo's and disk's angular momenta, asymmetric gas accretion or tidal interactions.
During my talk, I will present early results of my project in which I am investigating tidally induced gaseous warps of galaxies from IllustrisTNG simulations. IllustrisTNG is a state-of-the-art magnetohydrodynamical cosmological suite of simulations that follows the formation and evolution of galaxies. I found that around 190 galaxies from one of the IllustrisTNG simulations have S-shaped warped disks and the most common formation mechanisms of these warps are tidal interactions and accretion of satellite galaxies.

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