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How we think planet formation disks are forming? The past, the present and the future

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Protoplanetary disks are fundamental objects for our understanding of planet formation. Whereas they are in essence a consequence of angular momentum conservation, the exact amount of mass and angular momentum which are delivered towards the proto-star remain largely unknown. Indeed, this process seems to be largelly controlled by magnetic field and more specifically by magnetic braking. However the outcome sensitivelly depends on the ionisation degree as well as the charge carriers, which appear to be not only the electrons and the ions but also the dust grains. This adds considerable complexity in the problem.
During the talk, I will review our understanding of the protoplanetary disk formation process, adopting an historical perspective and stressing what are the important steps for the future.

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