Workshop CAST 2020

Antwerp (Belgium), Feb 6-8, 2020

Bourgeois contact structures:

tightness, fillability, and applications

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Starting from a contact structure on an odd-dimensionalmanifold together with a supporting open book, Bourgeois '02 constructed an explicit contact structure on the product of the manifold with the 2-torus.

The first objective of the talk is to recall this construction and present some new results concerning its properties. Namely, in dimension 5, these contact structures are always tight; moreover, if the original open book has a page of genus 0 and the resulting contact manifold is strongly fillable, then the monodromy of the open book used in the construction needs to be in the commutator subgroup of the mapping class group of the page. In the second part of the talk, I will describe the main ideas behind the proof of the fillability result.

Everything is joint work with Jonathan Bowden and Agustin Moreno.