

SOME REGULARITY RESULTS FOR THE 3D EVOLUTION NAVIER-STOKES EQUATIONS UNDER NAVIER BOUNDARY CONDITIONS IN SOME LIPSCHITZ DOMAINS

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For the evolution Navier-Stokes equations in bounded 3D domains, it is well-known that the uniqueness of a solution is related to the existence of a regular solution. They may be obtained under suitable assumptions on the data and smoothness assumptions on the domain (at least $C^{2,1}$). With a symmetrization technique, we prove these results in the case of Navier boundary conditions in a wide class of merely *Lipschitz domains* of physical interest, that we call *sectors*, see Figure 1. The validity/failure of a suitable Poincaré-type inequality is also discussed to complete the proof. This is a joint work with Filippo Gazzola, Politecnico di Milano.

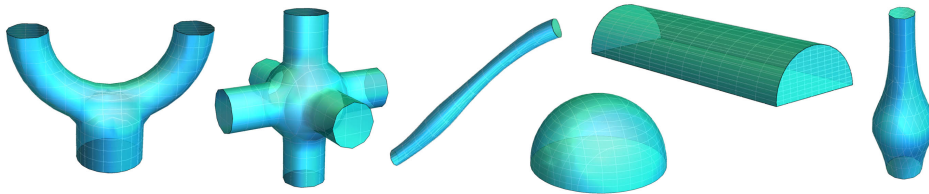


FIGURE 1. Some examples of *sectors*.