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*"Error estimator for moving mesh Discontinuous-Galerkin scheme for the resolution of convection-dominated flows"*

For the resolution of flows in fluid dynamics it has become crucial to use mesh-refinement techniques. Indeed, for instance in many approximations of the Navier-Stokes equation, the interesting parts of the flow will be held in one specific zone of the computational domain. Generally, the computational domain will be too wide and thus it would be costful to have an equally fine mesh everywhere. The whole work for refinement will be to spot those zones depending on different criteria. The final goal will be to find a computationally cheap way to gain a lot of precision in your solution's approximation.
To that extent the study of the behavior of the error (creation as well as propagation of the error) is an interesting tool to help choosing a spatial refinement criterion.
Combining this spatial refinement approach with a moving mesh method helps to have always finer approximation of the solution.
In this presentation I will outline how the use of a proper semi-lagrangian frame and discontinuous galerkin scheme with a well chosen error estimator helps us to find cheap refinement criterion.

To do so I will first present how adapted discontinuous Galerkin methods are to advection-diffusion equation, and than I will compare different kinds of refinment criterion.