Abstract Submitted
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The inception of eddy formation in the flow around a circular cylinder NIKOLAOS MALAMATARIS, George Mason University / TEI W. Macedonia, ANASTASIA GARATIDOU, GEORGE SAKKOS, KONSTANTINE MATSIANIKAS, TEI W Macedonia — The inception of eddy formation in the flow around a circular cylinder is studied with a home made Galerkin finite element code. The results show that the eddy begins at Re=6.2 which is the lowest Reynolds number reported so far in the literature. The code is validated with well known results for this flow. In addition, it is calculated for the first time how the pressure distribution around the cylinder surface varies for Reynolds numbers lower than 6.2 where experimental results exist from 1936. Finally, a new formula is given for the variation of the drag coefficient with respect to the Reynolds numbers under creeping flow conditions which deviates significantly from the well known result that exists in the literature.

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