

Abstract Submitted
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Investigation of a low Reynolds number airfoil using molecular tagging velocimetry¹ ALAN KATZ, AHMED NAGUIB, MANOOCHEHR KOOCHESFAHANI, Michigan State University — Molecular tagging velocimetry (MTV) is used to study flow separation, transition, and reattachment on a SD7003 airfoil at a chord Reynolds number of 20,000. Multi-line tagging is employed to obtain high resolution one-component velocity data near the suction surface of the airfoil. The spatial resolution in the wall-normal direction normalized by the chord length is about 0.0003, nearly ten times smaller than previously reported PIV measurements on the same airfoil under similar flow conditions. Preliminary data will be presented for the locations of flow separation and reattachment for the airfoil at an angle of attack of 8 degrees, and results will be compared with existing experimental and computational data.

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