Antonio Marigonda (`amarigo@[omoit]math.unipd.it`), Dipartimento di Matematica, Università di Pavia, via Ferrata, 1, 27100 Pavia, Italy, *Second-Order Conditions for the Controllability of Nonlinear Systems with Drift*.[1]

Abstract. We study controllability of control systems on $\mathbb{R}^n$ of the form $\dot{x} = f(x) + \sum_{i=1}^{m} u_i g_i(x)$ with $u \in \mathcal{U}$ where $\mathcal{U}$ is a compact convex subset of $\mathbb{R}^n$ with a rather general target. The symmetric (driftless) case, i.e. $f = 0$, is a very classical topic, and in this case the results on controllability and Hölder continuity of the minimal time function T are related to certain properties of the Lie algebra generated by the g_i's. Here, we want to extend some results on controllability and Hölder continuity of T to some cases where $f \neq 0$. We use tools from geometric control theory (in particular *chronological calculus*) and nonsmooth analysis (related to regularity properties of distance functions from closed subsets of $\mathbb{R}^n$). This talk is based on the paper [Marigonda, A., "Second order conditions for controllability of nonlinear systems with drift," *Communications on Pure and Applied Analysis*, Volume 5, Number 4, pp. 861–885, 2006].

Biographical Sketch. Antonio Marigonda was born in Rome, Italy. He received his Laurea degree summa cum laude in Pure and Applied Mathematics Sciences from the University of Padova. He earned his Ph.D. in Mathematics from University of Padova in 2006 under the direction of Giovanni Colombo. From February 2006 to July 2006, he had a temporary position enrolled in the research project "Viscosity, metric, and control theoretic methods for nonlinear PDEs" at University of Roma La Sapienza. Since August 2006, he has held a temporary position at University of Pavia. His publications are on nonsmooth analysis, optimal control and Hamilton-Jacobi equations.

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[1]The [`omit`] should be omitted when sending email. It was included here to avoid automatic "harvesting" by spam-list makers.