

1035-93-599

Craig Calcaterra* (craig.calcaterra@metrostate.edu), 700 East 7th Street, Saint Paul, MN 55102. *Foliating Metric Spaces: A Generalization of Frobenius' Theorem.*

A new proof of Frobenius' integrability theorem is given which generalizes to metrics spaces. Families of curves are used in place of vector fields along with the traditional asymptotic definition of the Lie bracket. Flows on metric spaces again commute if and only if their bracket is zero.

A surprising example in infinite-dimensional control theory is immediate: the Hilbert space of square integrable functions is controllable with the two most elementary flows on the space. (Received September 11, 2007)