Some References

Below are some references for the lectures I gave. You will notice that the list includes only papers I have written or coauthored with students and/or colleagues! This should not be taken to mean that there are no other equally or more important contributions but rather that these are what I drew upon to prepare the lectures and that the notation in them is usually close to the notation used in the lectures. Fatima Liete has given many general references and I saw no need to replicate those here. In some cases, where the title is not completely descriptive, I have added a word or two to to suggest the relevance.

A. Papers on Control

1. "System Theory on Group Manifolds and Coset Spaces," *SIAM Journal on Control*, Vol. 10 (1972) pp. 265-284.

2. "Lie Theory and Control Systems Defined on Spheres," *SIAM Journal Appl. Math.*, Vol. 25 (1973) pp. 213-225. (Early paper on controllability, stabilization and optimization.)

3. "Lie Algebras and Lie Groups in Control Theory," in *Geometric Methods in System Theory* (D. Q. Mayne and R. W. Brockett, eds.). Dordrecht, The Netherlands: Reidel Publishing Co., 1973, pp. 43-82. (Large expository content)

4. "Feedback Invariants for Nonlinear Systems," *Proceedings of the 1978 IFAC Congress, Helsinki, Finland*, Pergamon Press, Oxford,1978. (Discusses the feedback group)

5. "Control Theory and Singular Riemannian Geometry," in *New Directions in Applied Mathematics* (P. Hilton and G. Young, eds.). New York: Springer-Verlag, 1981, pp. 11-27. (Derives the star-shaped geodesic ball for first bracket controllable systems)

6. "Asymptotic Stability and Feedback Stabilization," in *Differential Geometrics in Control Theory* (R. W. Brockett *et al.*, eds.), Progress in Mathematics, Vol. 27. Birkhäuser Publishers, Boston, MA: 1983, pp. 181-191. (Proves an impossibility theorem relating to continuous feedback stabilization)

7. "Nonlinear Control Theory and Differential Geometry," *Proceedings of the International Congress of Mathematicians*, Polish Scientific Publishers, Warsawa, 1984. pp. 1357-1367. (A summary paper written in a more mathematical style.)

8. "Non-holonomic Kinematics and the Role of Elliptic Functions in Constructive Controllability," in *Nonholonomic Motion Planning*, (Zexiang Li and J.F. Canny, eds.), Kluwer Academic Publishers, Norwell, MA. 1993. pp. 1-21. (with Liyi Dai).

9. "Explicitly Solvable Control Problems with Nonholonomic Constraints," *Proc. of the 1999 CDC Conference*, Phoenix AZ, 1999, pp. 13-16. (Discusses some symmetric space optimization problems)

10. "Pattern Generation and the Control of Nonlinear Systems," *IEEE Trans. on Automatic Control,* vol. 48, (Oct. 2003) pp. 1699-1712. (There are a number of examples given in the first part of the paper showing how wide spread first bracket controllable systems are)

B. On Analytical Mechanics

1. "Control Theory and Analytical Mechanics," in *Geometric Control Theory* (C. Martin and R. Hermann, eds.). Brookline, Mass: Math. Sci. Press, 1977, pp. 1-48. (Discusses the addition of control terms to Lagrangian Mechanics)

2. "Dynamics of Kinematic Chains," *International Journal of Robotics Research,* Vol. 15, No.4, pp. 393-405. (1996). (with A. Stokes) (All done from a Lie point of view)

B. Papers on Quantum Control

1. "Time Optimal Control of Spin Systems," Physical Review A, vol. 163, March, 2001. (with Navin Khaneja and Stephan Glasser)

2. "Sub-Riemannian Geometry and Time Optimal Control of Three Spin Systems: Quantum Gates and Coherence Transfer," *Physical Review A,* 032301, vol. 65, (2002). (with Navin Khaneja and Steffen Glasser)

3. "The Controllability of Infinite Quantum Systems," *Proceedings of the 2003 CDC*, pp. 428-433. (with C. Rangan and A. M. Bloch) (to appear in IEEE Trans on Automatic Control)

C. Papers on stochastic differential equations and related partial differential equations

1. "The Geometry of the Conditional Density Equations," in *Analysis and Optimization of Stochastic Systems* (O. L. R. Jacobs *et al.*, eds.). New York: Academic Press, 1980, pp. 299-309. (with J. M. C. Clark)

2. "Nonlinear Systems and Nonlinear Estimation Theory," in *Stochastic Systems* (M. Hazewinkel and J. C. Willems, eds.). Dordrecht, The Netherlands: Reidel Publishing Co., 1981, pp. 441-477.

3. "Notes on Stochastic Processes on Manifolds," *Systems and Control in the Twenty-First Century*, (C. Byrnes, et al., eds.) pg 75-101, Birkhäuser, Boston, 1997.

4. "Heat Kernels for a Class of Hypoelliptic Operators," *American J. of Mathematics,* (2009). (with A. Mansouri).