NORTH CAROLINA STATE UNIVERSITY

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DEPARTMENT OF MATHEMATICS

CALCULUS OF VARIATIONS AND MATHEMATICAL THEORY OF OPTIMAL CONTROL

Final Report

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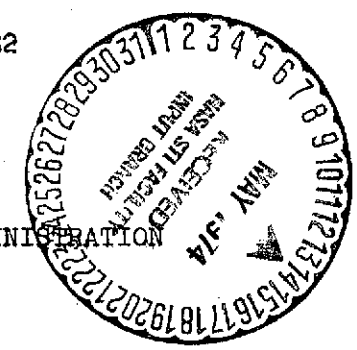

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Period of Performance

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Prepared by

Hans Sagan

Hans Sagan, Principal Investigator

The following publications and reports, germane to this grant, were prepared while this grant was in effect and were fully or partially supported by this grant:

Publications:

Lagrange Problems with a Variable Endpoint as Optimal Control Problems
by Hans Sagan, NASA-CR 837, 1967

Dynamic Programming and Pontryagin's Maximum Principle
by Hans Sagan, NASA-CR 838, 1967

Optimal Control Problems as Equivalent Lagrange Problems
by S. K. Park, NASA-CR 1550, 1970

Singular Extremaloids in Optimal Control Theory and the Calculus of Variations
by T. S. Straeter, NASA-CR 1581, 1970

The Linear Time Optimal Control Problem from a Calculus of Variations Point of View
by L. M. Hanafy, NASA-CR 1612, 1970

Calculus of Variations and Optimal Control Theory
by Hans Sagan, J. Franklin Institute, Volume 291, 1971

Bounded State Problems and the Calculus of Variations
by L. M. Hanafy, NASA-CR 1984, 1972

Optimal Control Problems with a Compact and Convex Control Region
by Hans Sagan, (to appear in: Proceedings of the 14th Biennial Seminar of the Canadian Mathematical Congress, 1973)

Optimal Control
by Hans Sagan, (to appear as Chapter 8 in: Handbook of Operations Research, The VanNostrand-Reinhold Book Company, 1974)

Ph.D. Theses:

On the Equivalence of Optimal Control Problems and the Transformation of Optimal Control Problems with Compact Control Region into Lagrange Problems
by S. K. Park, North Carolina State University, 1970.

On the Extension of the Davidon-Broyden Class of Rank One, Quasi-Newton Minimization Methods to an Infinite Dimensional Hilbert Space with Applications to Optimal Control Problems

by T. S. Straeter, North Carolina State University, 1971

A Transformation Approach to Optimal Control Problems with Bounded State Variables

by L. M. Hanafy, North Carolina State University, 1971.

Multilithed Reports:

The Transversality Condition in the Calculus of Variations

by Hans Sagan, 1966

Calculus of Variations and Optimal Control Theory

by Hans Sagan and J. D. Watson, 1966

Note on Lagrange Problems with Extremals of Changing Class

by Hans Sagan, 1966

Optimal Control theory - Classical and Modern (with extensive Bibliography)

by Hans Sagan, 1966