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Department of Mathematics and Statistics

May 17, 1989

Carey M. Fountain, Capt, USAF Contracting Officer Department of the Air Force Air Force Office of Scientific Research (AFSC) Bolling Air Force Base, DC 20332-6448

Dear Capt. Fountain 87-0112 Progress Report on AFOSR 89-0401 Re: Principal Investigator - James M. Greenberg

The following papers were completed under this grant and its predecessor AFOSR 87. All of these have been sent to my program director, Dr. Arje Nachman.

- 1. Continuum Limits of Discrete Gases; Arch. Rational Mech. and Anal. 105, (1989) 367-376.
- 2. Hyperbolic Heat Transfer Problems with Phase Transitions, in Nonlinear Hyperbolic Equations - Theory, Computations Methods, and Applications, Notes in Fluid Mechanics Vol. 24 (1989), 186-192.
- •3. Surging Glacial Flows; IMA J. of Applied Mathematics (accepted and to appear).
- 34. Decay Theorems for the Broadwell Equations, Arch. Rational Mech. and Anal. (submitted).

Baltimore, MD 21228 [301] 455-2412

5. Collisionless Solutions to the Broadwell Equations, IMA volume on Hyperbolic Problems (to appear).

UMBC

To Carey M. Fountain, Capt, USAF

May 17, 1989

No new funds were delivered in FY 89 and residual funds were carried over until August 89 so that the principal investigator could support one of his Ph.d students, Ms. Lara Aist. Ms. Aist was a co-author with Greenberg on item 4.

The principal thrust of my research for the past twelve months has been on transport processes and in particular has focused on properties of Discrete Velocity Models on the Boltzmann equation. This was one of the tasks proposed to the Air Force in 87. This work has been reported at a meeting at the IMA in March and in colloquia at Carnegie Mellon University and Duke.

Sincerely,

Jamen Mgreen berg

James M. Greenberg, Chairman Department of Mathematics & Statistics

JMG/mw cc: Arje Nachman





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