

AD-A258 177

AGE

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OMB No. 0704-0188

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adquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson
Budget Paperwork Reduction Project (0704-0188), Washington, DC 20503

1. AGENCY US

3. REPORT TYPE AND DATES COVERED
FINAL 1 Apr 92 - 30 Sep 92

4. TITLE AND SUBTITLE

"ON THE BEHAVIOR OF NON-NEWTONIAN FLUIDS: ANALYSIS,
COMPUTATION AND EXPERIMENT" (U)

5. FUNDING NUMBERS

61102F

2

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2304/AY

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8. PERFORMING ORGANIZATION
REPORT NUMBER

4

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

AFOSR/NM
Bldg 410
Bolling AFB DC 20332-6448

10. SPONSORING/MONITORING
AGENCY REPORT NUMBER

AFOSR-90-0253

11. SUPPLEMENTARY NOTES

DTIC
ELECTE
NOV 25 1992
S A D

12a. DISTRIBUTION/AVAILABILITY STATEMENT

Approved for public release;
Distribution unlimited

12b. DISTRIBUTION CODE

UL

13. ABSTRACT (Maximum 200 words)

Significant progress has been achieved on key research projects that were supported by this grant. The researchers have extended the asymptotic modelling of free surface jets, through an averaging approach, to all orders in perturbation. These higher order theories were then extended to pointwise approximations, which yield more detailed characteristics of the flow. Dynamical ill-posedness of these model equations was discussed. Fully time-dependent model simulations were developed. Practical applications of these models were given for fiber spinning processes. Through interactions with government and private industry they have transferred this basic research to important applied problems.

14. SUBJECT TERMS

15. NUMBER OF PAGES

1

16. PRICE CODE

17. SECURITY CLASSIFICATION
OF REPORT

UNCLASSIFIED

18. SECURITY CLASSIFICATION
OF THIS PAGE

UNCLASSIFIED

19. SECURITY CLASSIFICATION
OF ABSTRACT

UNCLASSIFIED

20. LIMITATION OF ABSTRACT

SAR

OHIO STATE UNIVERSITY

ANNUAL & FINAL TECH REPORT

AFOSR-90-0253

PERIOD OF PERFORMANCE

1 APRIL 1990 - 31 MARCH 1991

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1 APRIL 1990 - 30 SEPTEMBER 1992

201101
92-30190



308

92 11 01 050

