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Publications

PUBLICATIONS
• Roles of particle-wall and particle-particle interactions in highly confined suspensions of spherical particles being sheared at low Reynolds numbers PHYSICS OF FLUIDS
  Sangani, A. S., Acrivos, A., Peyla, P.
  2011; 23 (8)

• Conveyor-belt method for assembling microparticles into large-scale structures using electric fields APPLIED PHYSICS LETTERS
  Kumar, A., Acrivos, A., Khusid, B., James, C. D., Jacqmin, D.
  2007; 90 (15)

• Electric field-driven formation of particle concentration fronts in suspensions FLUID DYNAMICS RESEARCH
  Kumar, A., Acrivos, A., Khusid, B., Jacqmin, D.
  2007; 39 (1-3): 169-192

• Measurements of the fluid and particle mobilities in strong electric fields PHYSICS OF FLUIDS
  Kumar, A., Elele, E., Yeksel, M., Khusid, B., Qiu, Z., Acrivos, A.
  2006; 18 (12)

• Dielectrophoretic trapping of particles at the three-phase contact line INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH
  Kumar, A., Khusid, B., Acrivos, A.
  2006; 45 (21): 6978-6980

• Surface micromachined dielectrophoretic gates for the front-end device of a biodetection system JOURNAL OF FLUIDS ENGINEERING-TRANSACTIONS OF THE ASME
  James, C. D., Okandan, M., Galambos, P., Mani, S. S., Bennett, D., Khusid, B., Acrivos, A.
  2006; 128 (1): 14-19

• New electric-field-driven mesoscale phase transitions in polarized suspensions PHYSICAL REVIEW LETTERS
  Kumar, A., Khusid, B., Qiu, Z. Y., Acrivos, A.
  2005; 95 (25)

• The drag-out problem in film coating PHYSICS OF FLUIDS
  Jin, B., Acrivos, A., Munch, A.
• Rimming flows within a rotating horizontal cylinder: asymptotic analysis of the thin-film lubrication equations and stability of their solutions *JOURNAL OF ENGINEERING MATHEMATICS*
  Acrivos, A., Jin, B.
  2004; 50 (2-3): 99-120

• Combined negative dielectrophoresis and phase separation in nondilute suspensions subject to a high-gradient ac electric field *PHYSICAL REVIEW E*
  Kumar, A., Qiu, Z. Y., Acrivos, A., Khusid, B., Jacqmin, D.
  2004; 69 (2)

• Field-induced dielectrophoresis and phase separation for manipulating particles in microfluidics *NSTI NANO TECH 2004, VOL 2, TECHNICAL PROCEEDINGS*
  Bennett, D. J., Khusid, B., James, C. D., Galambos, P. C., Okandan, M., Jacqmin, D., Kumar, A., Qiu, Z., Acrivos, A.
  2004: 367-370

• Limitations on the scale of an electrode array for trapping particles in microfluidics by positive dielectrophoresis *APPLIED PHYSICS LETTERS*
  Markarian, N., Yeksel, M., Khusid, B., Farmer, K., Acrivos, A.
  2003; 82 (26): 4839-4841

• Adsorption phenomena in the transport of a colloidal particle through a nanochannel containing a partially wetting fluid *PHYSICAL REVIEW LETTERS*
  Drazer, G., Koplik, J., Acrivos, A., Khusid, B.
  2002; 89 (24)

• Positive dielectrophoresis and heterogeneous aggregation in high-gradient ac electric fields *JOURNAL OF APPLIED PHYSICS*
  Qiu, Z. Y., Markarian, N., Khusid, B., Acrivos, A.
  2002; 92 (5): 2829-2843

• Squeezing flow of particles and large molecules suspended in a liquid through nanochannels  *2006 INTERNATIONAL CONFERENCE ON COMPUTATIONAL NANOSCIENCE AND NANO TECHNOLOGY - ICCN 2002*
  Acrivos, A., Khusid, B., Koplik, J., Drazer, G.
  2002: 97-98

• Particle segregation in suspensions subject to high-gradient ac electric fields *JOURNAL OF APPLIED PHYSICS*
  Dussaud, A. D., Khusid, B., Acrivos, A.
  2000; 88 (9): 5463-5473

• Phase diagrams of electric-field-induced aggregation in conducting colloidal suspensions *PHYSICAL REVIEW E*
  Khusid, B., Acrivos, A.
  1999; 60 (3): 3015-3035

• AN EXPERIMENTAL-STUDY OF VISC OS RESUSPENSION IN A PRESSURE-DRIVEN PLANE CHANNEL FLOW *INTERNATIONAL JOURNAL OF MULTIPHASE FLOW*
  Schaflinger, U., Acrivos, A., STIBI, H.
  1995; 21 (4): 693-704

• VISCOS RESUSPENSION IN FULLY-DEVELOPED LAMINAR PIPE FLOWS *INTERNATIONAL JOURNAL OF MULTIPHASE FLOW*
  Zhang, K., Acrivos, A.
  1994; 20 (3): 579-591

• LONGITUDINAL SHEAR-INDUCED DIFFUSION OF SPHERES IN A DILUTE SUSPENSION *JOURNAL OF FLUID MECHANICS*
  Acrivos, A., BATCHELOR, G. K., Hinch, E. J., Koch, D. L., Mauri, R.
  1992; 240: 651-657

• ON THE NATURE OF THE INSTABILITY IN BUOYANCY-DRIVEN FLOWS IN INCLINED SETTLERS *PHYSICS OF FLUIDS A-F LIQUID DYNAMICS*
  Zhang, K., Acrivos, A., Triantafyllou, G. S.
  1992; 4 (6): 1156-1164

• STABILITY IN A 2-DIMENSIONAL HAGEN-POISEUILLE RESUSPENSION FLOW *INTERNATIONAL JOURNAL OF MULTIPHASE FLOW*
  Zhang, K., Acrivos, A., Schaflinger, U.
- **Viscous Resuspension of a Sediment Within a Laminar and Stratified Flow** *International Journal of Multiphase Flow*
  Schaflinger, U., Acrivos, A., Zhang, K.
  1990; 16 (4): 567-578

- **Bounds on the Effective Properties of Polydisperse Suspensions of Spheres - An Evaluation of 2 Relevant Morphological Parameters** *Journal of Applied Physics*
  Thovert, J. F., Kim, I. C., Torquato, S., Acrivos, A.
  1990; 67 (10): 6088-6098

- **Particle Migration in Suspensions by Thermocapillary or Electrophoretic Motion** *Journal of Fluid Mechanics*
  Acrivos, A., Jeffrey, D. J., Saville, D. A.
  1990; 212: 95-110

- **Sedimentation and Sediment Flow on Inclined Surfaces** *Journal of Fluid Mechanics*
  Nir, A., Acrivos, A.
  1990; 212: 139-153

- **The Effective Thermal-Conductivity of a Random Polydisperse Suspension of Spheres to Order C-2** *Chemical Engineering Communications*
  Thovert, J. F., Acrivos, A.
  1989; 82: 177-191

- **The Sedimentation of Nondilute Suspensions in Inclined Settlers** *Physics of Fluids*
  Borhan, A., Acrivos, A.
  1988; 31 (12): 3488-3501

- **The Effective Thermal-Conductivity and Elongational Viscosity of a Nondilute Suspension of Aligned Slender Rods** *Physics of Fluids*
  Acrivos, A., Shaqfeh, E. S.
  1988; 31 (7): 1841-1844

- **The Effective Permeability of a Random Dispersion of Spheres** *Physicochemical Hydrodynamics*
  Chang, E. Y., Acrivos, A.
  1988; 10 (5-6): 579-584

- **Conduction of Heat from a Planar Wall with Uniform Surface-Temperature to a Monodisperse Suspension of Spheres** *Journal of Applied Physics*
  Chang, E. Y., Acrivos, A.
  1987; 62 (3): 771-776

- **The Shear-Induced Migration of Particles in Concentrated Suspensions** *Journal of Fluid Mechanics*
  Leighton, D., Acrivos, A.
  1987; 181: 415-439

- **Enhanced Sedimentation in Vessels with Inclined Walls - Experimental-Observations** *Physics of Fluids*
  Shaqfeh, E. S., Acrivos, A.
  1987; 30 (7): 1905-1914

- **The Effects of Inertia on the Stability of the Convective Flow in Inclined Particle Settlers** *Physics of Fluids*
  Shaqfeh, E. S., Acrivos, A.
  1987; 30 (4): 960-973

- **Measurement of Shear-Induced Self-Diffusion in Concentrated Suspensions of Spheres** *Journal of Fluid Mechanics*
  Leighton, D., Acrivos, A.
  1987; 177: 109-131

- **Steady Flow Past Sudden Expansions at Large Reynolds-Number. 2. Navier-Stokes Solutions for the Cascade Expansion** *Physics of Fluids*
  Milos, F. S., Acrivos, A., Kim, J.
1987; 30 (1): 7-18

- **THE RATE OF HEAT-CONDUCTION FROM A HEATED SPHERE TO A PACKED-BED OF PASSIVE SPHERES** *CHEMICAL ENGINEERING COMMUNICATIONS*
  Chang, E. Y., Acrivos, A.
  1987; 58 (1-6): 165-170

- **THE EFFECTS OF INERTIA ON THE BUOYANCY-DRIVEN CONVECTION FLOW IN SETTLING VESSELS HAVING INCLINED WALLS** *PHYSICS OF FLUIDS*
  Shaqfeh, E. S., Acrivos, A.
  1986; 29 (12): 3935-3948

- **RATE OF HEAT-CONDUCTION FROM A HEATED SPHERE TO A MATRIX CONTAINING PASSIVE SPHERES OF A DIFFERENT CONDUCTIVITY** *JOURNAL OF APPLIED PHYSICS*
  Chang, E., Acrivos, A.
  1986; 59 (10): 3375-3382

- **STEADY FLOW PAST SUDDEN EXPANSIONS AT LARGE REYNOLDS-NUMBER .1. BOUNDARY-LAYER SOLUTIONS** *PHYSICS OF FLUIDS*
  Milos, F. S., Acrivos, A.
  1986; 29 (5): 1353-1359

- **VISCOUS RESUSPENSION** *CHEMICAL ENGINEERING SCIENCE*
  Leighton, D., Acrivos, A.
  1986; 41 (6): 1377-1384

- **A MODEL FOR ESTIMATING TRANSPORT QUANTITIES IN 2-PHASE MATERIALS** *PHYSICS OF FLUIDS*
  Acrivos, A., Chang, E.
  1986; 29 (1): 3-4

- **SEDIMENTATION OF NONCOLLOIDAL PARTICLES AT LOW REYNOLDS-NUMBERS** *ANNUAL REVIEW OF FLUID MECHANICS*
  Davis, R. H., Acrivos, A.
  1985; 17: 91-118

- **THE FORMATION AND EXPANSION OF A TOROIDAL DROP MOVING IN A VISCOUS-FLUID** *PHYSICS OF FLUIDS*
  Kojima, M., Hinch, E. J., Acrivos, A.
  1984; 27 (1): 19-32

- **THE BREAKUP OF SMALL DROPS AND BUBBLES IN SHEAR FLOWS** *ANNALS OF THE NEW YORK ACADEMY OF SCIENCES*
  Acrivos, A.
  1983; 404 (MAY): 1-11

- **CREEPING FLOW THROUGH CUBIC ARRAYS OF SPHERICAL BUBBLES** *INTERNATIONAL JOURNAL OF MULTIPHASE FLOW*
  Sangani, A. S., Acrivos, A.
  1983; 9 (2): 181-185

- **THE EFFECTIVE CONDUCTIVITY OF A PERIODIC ARRAY OF SPHERES** *PROCEEDINGS OF THE ROYAL SOCIETY OF LONDON SERIES A-MATHEMATICAL PHYSICAL AND ENGINEERING SCIENCES*
  Sangani, A. S., Acrivos, A.
  1983; 386 (1791): 263-275

- **WAVE FORMATION AND GROWTH DURING SEDIMENTATION IN NARROW TILTED CHANNELS** *PHYSICS OF FLUIDS*
  Davis, R. H., HERBOLZHEIMER, E., Acrivos, A.
  1983; 26 (8): 2055-2064

- **CLOSED-CAVITY LAMINAR FLOWS AT MODERATE REYNOLDS-NUMBERS** *JOURNAL OF FLUID MECHANICS*
  Brady, J. F., Acrivos, A.
  1982; 115 (FEB): 427-442

- **SLOW FLOW THROUGH A PERIODIC ARRAY OF SPHERES** *INTERNATIONAL JOURNAL OF MULTIPHASE FLOW*
  Sangani, A. S., Acrivos, A.
  1982; 8 (4): 343-360
• **NATURAL-CONVECTION IN A VERTICAL CHANNEL WITH OPPOSING BUOYANCY FORCES** *INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER*
  Lee, T. S., PARIKH, P. G., Acrivos, A., Bershader, D.
  1982; 25 (4): 499-511

• **SLOW FLOW PAST PERIODIC ARRAYS OF CYLINDERS WITH APPLICATION TO HEAT-TRANSFER** *INTERNATIONAL JOURNAL OF MULTIPHASE FLOW*
  Sangani, A. S., Acrivos, A.
  1982; 8 (3): 193-206

• **STEADY FLOW IN A SUDDEN EXPANSION AT HIGH REYNOLDS-NUMBERS** *PHYSICS OF FLUIDS*
  Acrivos, A., Schrader, M. L.
  1982; 25 (6): 923-930

• **THE SEDIMENTATION OF POLYDISPERSE SUSPENSIONS IN VESSELS HAVING INCLINED WALLS** *INTERNATIONAL JOURNAL OF MULTIPHASE FLOW*
  Davis, R. H., HERBOLZHEIMER, E., Acrivos, A.
  1982; 8 (6): 571-585

• **THE DEFORMATION AND BREAKUP OF A SLENDER DROP IN AN EXTENSIONAL FLOW - INERTIAL EFFECTS** *JOURNAL OF FLUID MECHANICS*
  Brady, J. F., Acrivos, A.
  1982; 115 (FEB): 443-451

• **STEADY FLOW IN A CHANNEL OR TUBE WITH AN ACCELERATING SURFACE VELOCITY - AN EXACT SOLUTION TO THE NAVIER-STOKES EQUATIONS WITH REVERSE FLOW** *JOURNAL OF FLUID MECHANICS*
  Brady, J. F., Acrivos, A.
  1981; 112 (NOV): 127-150

• **ENHANCED SEDIMENTATION IN NARROW TILTED CHANNELS** *JOURNAL OF FLUID MECHANICS*
  HERBOLZHEIMER, E., Acrivos, A.
  1981; 108 (JUL): 485-499

• **THE SCHERAGA-MANDELKERN PARAMETERS FOR SLIGHTLY PERMEABLE SPHEROIDS** *JOURNAL OF CHEMICAL PHYSICS*
  Kojima, M., Acrivos, A.
  1981; 74 (7): 4096-4102

• **LONG SLENDER DROPS IN A SIMPLE SHEAR-FLOW** *JOURNAL OF FLUID MECHANICS*
  Hinch, E. J., Acrivos, A.
  1980; 98 (MAY): 305-328

• **SHEAR-INDUCED STRUCTURE IN A CONCENTRATED SUSPENSION OF SOLID SPHERES** *JOURNAL OF RHEOLOGY*
  GADALAMARIA, F., Acrivos, A.
  1980; 24 (6): 799-814

• **THE EXTENDED GRAETZ PROBLEM AT LOW PECLET NUMBERS** *APPLIED SCIENTIFIC RESEARCH*
  Acrivos, A.
  1980; 36 (1): 35-40

• **A NOTE ON THE RATE OF HEAT OR MASS-TRANSFER FROM A SMALL PARTICLE FREELY SUSPENDED IN A LINEAR SHEAR FIELD** *JOURNAL OF FLUID MECHANICS*
  Acrivos, A.
  1980; 98 (MAY): 299-304

• **HEAT-TRANSFER TO A SLOWLY MOVING FLUID FROM A DILUTE FIXED-BED OF HEATED SPHERES** *JOURNAL OF FLUID MECHANICS*
  Acrivos, A., Hinch, E. J., Jeffrey, D. J.
  1980; 101 (NOV): 403-421

• **STEADY LONG SLENDER DROPLETS IN 2-DIMENSIONAL STRAINING MOTION** *JOURNAL OF FLUID MECHANICS*
  Hinch, E. J., Acrivos, A.
1979; 91 (APR): 401-414

- ENHANCED SEDIMENTATION IN SETTLING TANKS WITH INCLINED WALLS, JOURNAL OF FLUID MECHANICS
  Acrivos, A., HERBOLZHEIMER, E.
  1979; 92 (JUN): 435-457

- DEFORMATION AND BREAKUP OF A SINGLE SLENDER DROP IN AN EXTENSIONAL FLOW, JOURNAL OF FLUID MECHANICS
  Acrivos, A., Lo, T. S.
  1978; 86 (JUN): 641-672

- SOLUTION OF EQUATIONS OF LINEAR ELASTICITY FOR AN INFINITE REGION CONTAINING 2 SPHERICAL INCLUSIONS, INTERNATIONAL JOURNAL OF SOLIDS AND STRUCTURES
  Chen, H. S., Acrivos, A.
  1978; 14 (5): 331-348

- EFFECTIVE ELASTIC-MODULI OF COMPOSITE-MATERIALS CONTAINING SPHERICAL INCLUSIONS AT NON-DILUTE CONCENTRATIONS, INTERNATIONAL JOURNAL OF SOLIDS AND STRUCTURES
  Chen, H. S., Acrivos, A.
  1978; 14 (5): 349-364

- NUMERICAL STUDY OF DEFORMATION AND BURST OF A VISCOS Drop IN AN EXTENSIONAL FLOW, JOURNAL OF FLUID MECHANICS
  Rallison, J. M., Acrivos, A.
  1978; 89 (NOV): 191-200

- RHEOLOGICAL PROPERTIES OF SUSPENSIONS OF RIGID PARTICLES, AICHE JOURNAL
  Jeffrey, D. J., Acrivos, A.
  1976; 22 (3): 417-432

- EFFECTIVE THERMAL-CONDUCTIVITY OF DILUTE SUSPENSIONS CONTAINING HIGHLY CONDUCTING SLENDER INCLUSIONS, PROCEEDINGS OF THE ROYAL SOCIETY OF LONDON SERIES A-MATHEMATICAL AND PHYSICAL SCIENCES
  Chen, H. S., Acrivos, A.
  1976; 349 (1657): 261-276

- MOVING-WALL BOUNDARY-LAYER WITH REVERSE FLOW, JOURNAL OF FLUID MECHANICS
  Klemp, J. B., Acrivos, A.
  1976; 76 (JUL28): 363-381

- EFFECTIVE THERMAL-CONDUCTIVITY OF SHEARED SUSPENSIONS, JOURNAL OF FLUID MECHANICS
  Nir, A., Acrivos, A.
  1976; 78 (NOV5): 33-48

- SHAPE OF A GAS BUBBLE IN A VISCOS EXTENSIONAL FLOW, JOURNAL OF FLUID MECHANICS
  YOUNGREN, G. K., Acrivos, A.
  1976; 76 (AUG11): 433-442

- CLOSED-STREAMLINE FLOWS PAST ROTATING SINGLE CYLINDERS AND SPHERES - INERTIA EFFECTS, JOURNAL OF FLUID MECHANICS
  POE, G. G., Acrivos, A.
  1975; 72 (DEC23): 605-7

- STOKES FLOW PAST A PARTICLE OF ARBITRARY SHAPE - NUMERICAL-METHOD OF SOLUTION, JOURNAL OF FLUID MECHANICS
  YOUNGREN, G. K., Acrivos, A.
  1975; 69 (MAY27): 377-403

- ROTATIONAL FRICTION COEFFICIENTS FOR ELLIPSOIDS AND CHEMICAL MOLECULES WITH SLIP BOUNDARY-CONDITION, JOURNAL OF CHEMICAL PHYSICS
  YOUNGREN, G. K., Acrivos, A.
  1975; 63 (9): 3846-3848

- VARIATIONAL INEQUALITIES FOR A BODY IN A VISCOS SHEARING FLOW, JOURNAL OF FLUID MECHANICS
  Nir, A., Weinberger, H. F., Acrivos, A.
1975; 68 (APR29): 739-755

- STEADY SIMPLE SHEAR-FLOW PAST A CIRCULAR-CYLINDER AT MODERATE REYNOLDS-NUMBERS - NUMERICAL-SOLUTION JOURNAL OF FLUID MECHANICS
  Kossack, C. A., Acrivos, A.
  1974; 66 (NOV6): 353-356

- EXPERIMENTS ON EFFECTIVE CONDUCTIVITY OF DILUTE DISPERSIONS CONTAINING HIGHLY CONDUCTING SLENDER INCLUSIONS PROCEEDINGS OF THE ROYAL SOCIETY OF LONDON SERIES A-MATHEMATICAL PHYSICAL AND ENGINEERING SCIENCES
  Rocha, A., Acrivos, A.
  1974; 337 (1608): 123-133

- EFFECTIVE THERMAL-CONDUCTIVITY OF DILUTE DISPERSIONS - HIGHLY CONDUCTING INCLUSIONS OF ARBITRARY SHAPE QUARTERLY JOURNAL OF MECHANICS AND APPLIED MATHEMATICS
  Rocha, A., Acrivos, A.
  1973; 26 (NOV): 441-455

- DEFORMATION AND BURST OF A LIQUID DROPLET FREELY SUSPENDED IN A LINEAR SHEAR FIELD JOURNAL OF FLUID MECHANICS
  BARTHESB, D., Acrivos, A.
  1973; 61 (OCT23): 1-21

- COMPUTER GENERATED ANALYTIC SOLUTIONS TO EQUATIONS OF FLUID MECHANICS - CASE OF CREEPING FLOWS JOURNAL OF COMPUTATIONAL PHYSICS
  BARTHESB, D., Acrivos, A.
  1973; 12 (3): 403-411

- EFFECTIVE THERMAL-CONDUCTIVITY OF DILUTE DISPERSIONS - GENERAL THEORY FOR INCLUSIONS OF ARBITRARY SHAPE QUARTERLY JOURNAL OF MECHANICS AND APPLIED MATHEMATICS
  Rocha, A., Acrivos, A.
  1973; 26 (MAY): 217-233

- CREEPING MOTION OF 2 ARBITRARY-SIZED TOUCHING SPHERES IN A LINEAR SHEAR FIELD JOURNAL OF FLUID MECHANICS
  Nir, A., Acrivos, A.
  1973; 59 (JUN19): 209-223

- EFFECTIVE MODULI OF COMPOSITE-MATERIALS - EXPERIMENTAL STUDY OF CHOPPED-FIBER REINFORCEMENT ZEITSCHRIFT FUR ANGEWANDTE MATHEMATIK UND PHYSIK
  Russel, W. B., Acrivos, A.
  1973; 24 (6): 838-852

- HIGH REYNOLDS-NUMBER STEADY SEPARATED FLOW PAST A WEDGE OF NEGATIVE ANGLE JOURNAL OF FLUID MECHANICS
  Klemp, J. B., Acrivos, A.
  1972; 56 (DEC12): 577-590

- EFFECTIVE MODULI OF COMPOSITE-MATERIALS - SLENDER RIGID INCLUSIONS AT DILUTE CONCENTRATIONS ZEITSCHRIFT FUR ANGEWANDTE MATHEMATIK UND PHYSIK
  Russel, W. B., Acrivos, A.
  1972; 23 (3): 434-463

- METHOD FOR INTEGRATING BOUNDARY-LAYER EQUATIONS THROUGH A REGION OF REVERSE FLOW JOURNAL OF FLUID MECHANICS
  Klemp, J. B., Acrivos, A.
  1972; 53 (MAY9): 177-?

- NOTE ON LAMINAR MIXING OF 2 UNIFORM PARALLEL SEMI-INFINITE STREAMS JOURNAL OF FLUID MECHANICS
  Klemp, J. B., Acrivos, A.
  1972; 55 (SEP12): 25-?

- HIGH REYNOLDS-NUMBER FLOW PAST A FLAT PLATE WITH STRONG BLOWING JOURNAL OF FLUID MECHANICS
  Klemp, J. B., Acrivos, A.
  1972; 51 (JAN25): 337-?