SpringerLink

University of Bristol Information Services

Athens Authentication Point

Recognized as:

University of Bristol Information Services (705-40-617)

1034 UKB (805-97-867)

1219 CHEST UK LNCS (432-04-078)

CHEST UK LNCS archives (410-38-324)

NESLI UK (864-17-416)

NESLI UK OJA (551-50-262)

Welcome!

To use the personalized features of this site, please **log in** or **register**.

If you have forgotten your username or password, we can **help**.

My Menu

Marked Items

Alerts

Order History

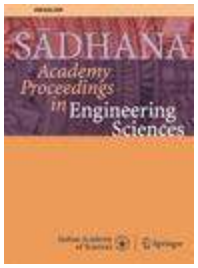
Saved Items

All

Favorites

Content Types **Subject Collections**

Journal Article



Analysis and computation of non-equilibrium two-phase flows

Journal	Sadhana
Publisher	Springer India
ISSN	0256-2499 (Print) 0973-7677 (Online)
Issue	Volume 22, Number 3 / June, 1997
Category	Recent Advances In Mechanical Engineering
DOI	10.1007/BF02744476
Pages	295-321
Subject Collection	Engineering
SpringerLink Date	Monday, November 12, 2007

PDF (1.8 MB)

citeulike | manage your scholarly papers

Abhijit Guha[1]

(1) Department of Aerospace Engineering, University of Bristol, Queen's Building, University Walk, BS8 1TR Bristol, UK

Abstract Non-equilibrium fluid mechanics and thermodynamics of two-phase vapour-droplet and gas-particle flow are considered. Formation of the droplets as well as their subsequent interaction with the vapour are discussed. A new theory of nucleation in steam turbines is developed that reproduces many aspects of measured droplet size spectra which cannot be explained by any available steady-flow theories. (Steam turbines are responsible for 80% of global electricity production and the presence of moisture significantly reduces turbine efficiency costing 50 million pounds per annum in UK alone.) Fluid dynamic interactions discussed include flow instabilities induced by

condensation, condensation wave theory, relaxation gas dynamics for vapour-droplet flow, thermal choking due to non-equilibrium condensation, the structure of shock waves and their development through unsteady processes, and jump conditions and the interpretation of total pressure in two-phase flows.

Keywords Non-equilibrium fluid mechanics - thermodynamics of two-phase flows - nucleation in steam turbines

---

Abhijit Guha
Email: A.Guha@Bristol.ac.uk

References secured to subscribers.

Frequently asked questions | General information on journals and bo
Impressum

Â© Springer. Part of Springer Science+Business Media

Privacy, Disclaimer, Terms and Conditions, Â© Copyright Informatio

Remote Address: 137.222.181.187 â€¢ Server: mpweb04
HTTP User Agent: Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; SV1; .NET CLR 2.0.
3.0.04506.30; InfoPath.1; .NET CLR 3.0.04506.648)