

# **Contributions of Professor Arun S. Mujumdar to Indian Engineering Education and R & D**

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The professional contribution of Prof. Arun S. Mujumdar has made to the development of higher engineering education, academic research as well as industrial R & D, and assisting entrepreneurs and small businesses over the past 45 years has been immense and probably matched by very few Indian-origin academic residing overseas. He has presented scores of seminars on topics of interest and applicability in industry, academia, and businesses at numerous Indian institutions (ICT, IITs, CSIR labs, etc.); they have been based on his research in heat and mass transfer, fluid mechanics, mathematical modelling, novel industrial drying technologies, solar energy, fuel cells, etc. He established an annual series of industrial workshops for industry and academia held in Mumbai since 2001 on Crystallization, Filtration, and Drying Technologies focussing on basics as well as advances in these fields of great importance to Indian food, pharmaceutical, mineral processing, chemical and biotechnology industry which have been making rapid strides in India. He has provided special courses and workshops for vendors of industrial drying equipment along with free consultation to many during his frequent visits to India as well as by telecommunication from Canada on a regular pro bono basis. Literally hundreds of entrepreneurs, small, medium as well as very large companies have benefitted from this continuing effort lasting over three decades. His 70+ books provide a goldmine of valuable knowledge, particularly in the field of industrial drying science and technology. He has provided hundreds of copies of his books free of cost, conference proceedings, preprints, and issues of the world's leading peer-reviewed journal Drying Technology to scores on institutions in India. His numerous books donated to the ICT Library in Mumbai provide valuable support to numerous industries in Mumbai and surrounding areas. It is noteworthy that despite the distance and personal cost to him of such participation, Dr. Mujumdar has given many keynote lectures at major conferences held in India. Most remarkably he hosted with the help of Dr. B. N. Thorat of ICT, Mumbai a global scale IDS (International Drying Symposium) in Hyderabad, India in 2008. He also chaired three highly successful Asia Pacific Drying Conferences in Kolkata (2005), Vadodara (2019) and Kolkata (2023). These truly global meetings have given visibility and recognition to India's growing prowess in technology and archival publication.

It is noteworthy that Dr. Mujumdar made an extraordinary effort to publish about 15 books of value to Indian industry and agriculture with several Indian publishers. These books have been made available to Indian readers at a cost about an order of magnitude lower than the cost of similar quality books sold in the west.

Furthermore, through his eminent position in the international arena, he has made special efforts to seek scholarships and fellowships for qualified Indian students and young faculty in overseas institutions for PhD studies. Many Indian faculty members have been appointed to editorial boards of journals and scientific committees of major international conferences thanks to his effort. Even today he continues to closely mentor PhD students as well as young faculty in research as well as professional advancement via effective networking. The monetary impact of his monumental selfless effort without expectation of any material support is hard to quantify but easy to recognize in the very diverse ways Dr. Mujumdar has made a sincere and extensive effort on his own initiative to assist India's development.

Following is a list of the key contributions Dr Mujumdar has made. It is not all-inclusive.

- 1976** : Visits to UDCT- seminars on personal research at McGill U.
- 1978** : Founded the series: Advances in Transport Processes series - after 2<sup>nd</sup> volume co-edited with Dr. R. A. Mashelkar 11 volumes, to promote R&D in India and make technical info available at low cost when foreign exchange was unavailable.
- 1982** : Indian Institute of Chemical Engineers (IChE) Keynote Lecture in Pune.
- 1982** : Visiting Professor at NCL, Pune.
- 1983** : Seminars at several CSIR labs, IITs, ATIRA, and Industries (includes L&T, EIL, Kilburn, SS Products, P& P mills, United Phosphorous Limited, etc).
- 1984 -** : Workshops for industry (1984, 1987, 1993, 2000 in Mumbai, Delhi) UDCT (2 times)
- 1993** individual GP Kane Lecturer, UDCT, Mumbai Several workshops sponsored by industry.
- 2001** : Workshop on Industrial Drying at UDCT, Matunga.
- 2001** : Joint Indian Heat Mass Transfer Conf and ASME Conf, Kolkata, Keynote Speaker.
- 2002** : Keynote at Chemcon, Chemical Engg. Conf. Chennai drying Workshop on Drying, Mumbai.
- 2004** : International Workshop and Symposium on Industrial Drying, IWSID2004 Mumbai. 30+ countries participated.

- 2005** : Organized Asia Pacific Drying Conference at Kolkata with CMERI (CSIR) ADC2005, 15 countries participated.
- 2006** : Chairman and Founder Member of International Forum for Crystallization, Filtration, and Drying WFCFD, 100+ participants.
- 2006** : Principal Speaker, 1<sup>st</sup> International Workshop on Crystallization, Filtration, and Drying.
- 2007** : Principal Speaker, 2<sup>nd</sup> International Workshop on Crystallization, Filtration, and Drying.
- 2008** : Principal Speaker, 3<sup>rd</sup> International Workshop on Crystallization, Filtration, and Drying.
- 2008** : 16<sup>th</sup> International Symposium on Drying (IDS2008), 350 attendees from 30+ countries. IDs series founded/chaired by Prof. Mujumdar in 1978.
- 2009** : Keynote speaker at two conferences at Banaras Hindu University (BHU)
- 2010** : Principle Speaker, 4<sup>th</sup> International Workshop WFCFD
- 2021** : 10<sup>th</sup> Asia Pacific Drying Conference, Vadodara.
- 2023** : 11<sup>th</sup> Asia Pacific Drying Conference, February 2023, Kolkata

The following table provides a benchmark comparison of the Google Scholar publication statistics demonstrating the relative extent and impact of research outcomes of prominent Padmavibhushan and Padmabhushan awardees from the same academic institution as our nominee Prof. Arun S. Mujumdar, namely, the Institute of Chemical Technology, Mumbai. It is clear that Dr. Mujumdar has performed at a very high scholarly level contributing high impact to the development of higher engineering education/research as well as R&D and entrepreneurship in India over a period of four decades at no cost to Indian resources. The number of his peer-reviewed publications as well as their impact on science and technology development as measured by the number of citations well exceed those of his senior colleagues who have been already recognized. Clearly, Dr. Mujumdar is highly deserving of the Padmavibhushan award which will also bring recognition to his contributions to India as well as to the esteemed institutions he has served effectively for over four decades on a pro bono basis. It is noteworthy that he has also made significant contributions to many developing countries and has been recognized with their highest national-level awards.

## **Statistically Speaking: Prof. Arun S. Mujumdar's Contribution to India in Numbers**

No of peer-reviewed papers with Indian academics/ students: 50+

No of book chapters: 25

No of books published in India: 15

No of businesses, industry assisted pro bono: 100+

No of research seminars/ conference papers: 20+

No of workshops (2-3 days each) for industry: 16

No of International conferences organized in India: 4

No of books/journal volumes donated to academic libraries in India: 300+

No of PhD students from India mentored: 10+

Collaborating faculty members mentored: 10+

Assisted international networking for 6 faculty members in Indian institutions

Scholarships sponsored and annual Visiting Professorship sponsored: 3

Entrepreneurs advised: 15+

As the above data show the very high professional standing of Dr. Mujumdar is extremely high even when compared to the advanced western nations.

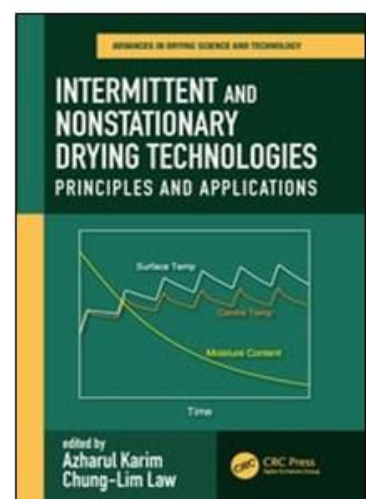
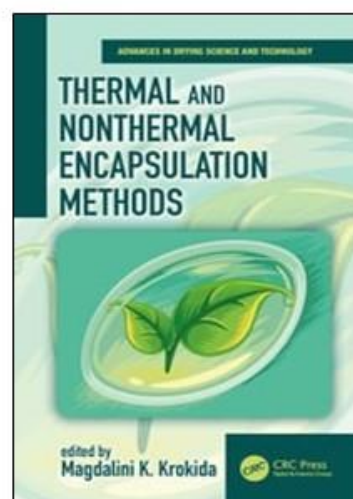
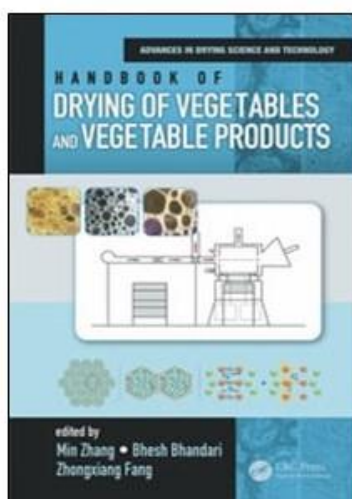
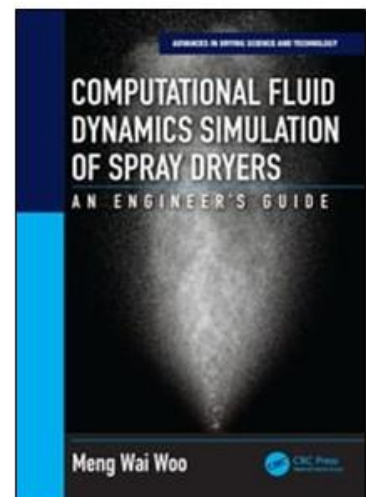
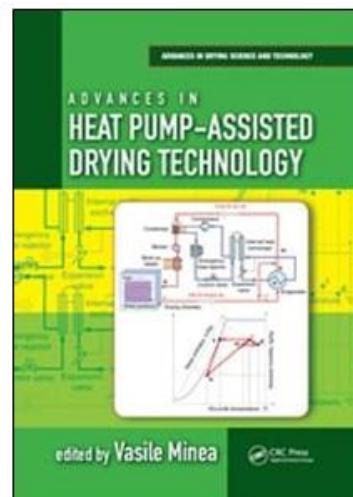
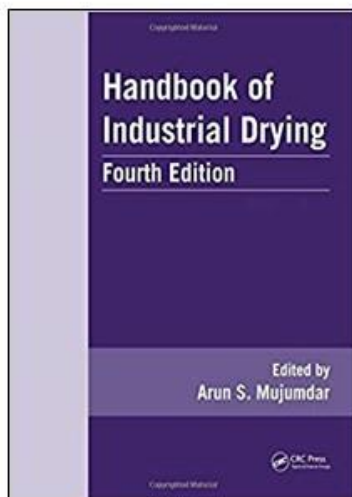
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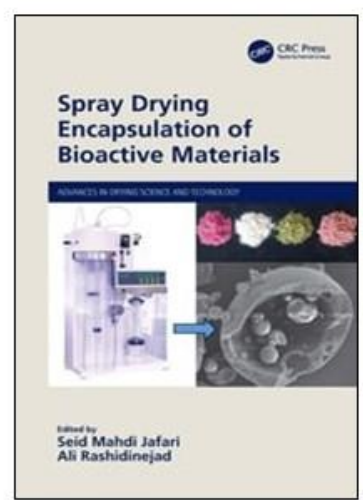
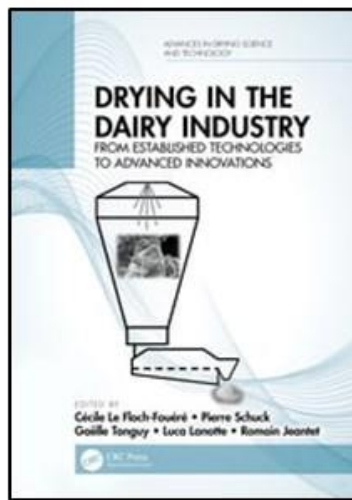
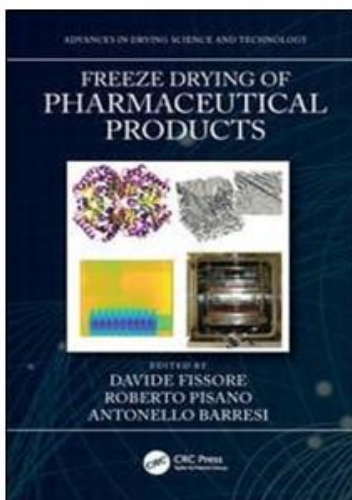
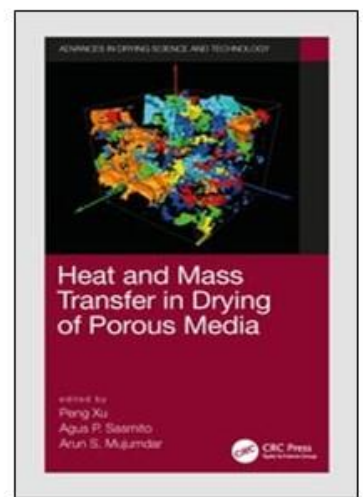
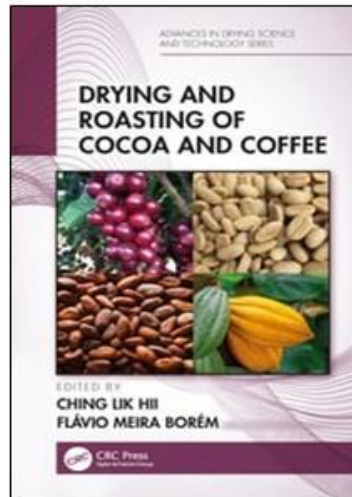
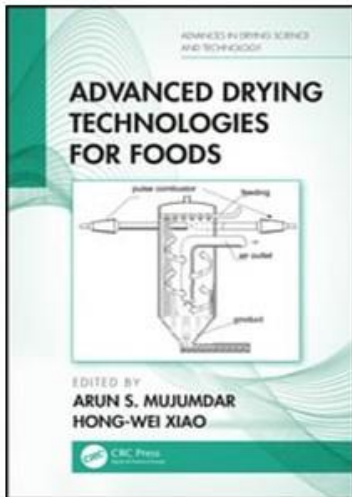
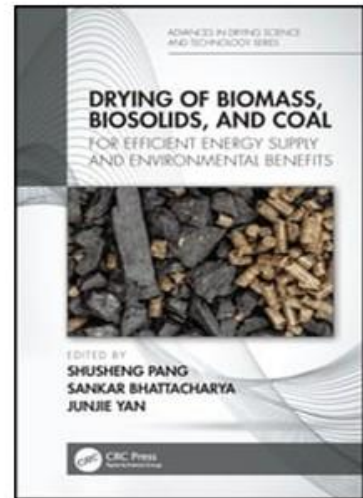
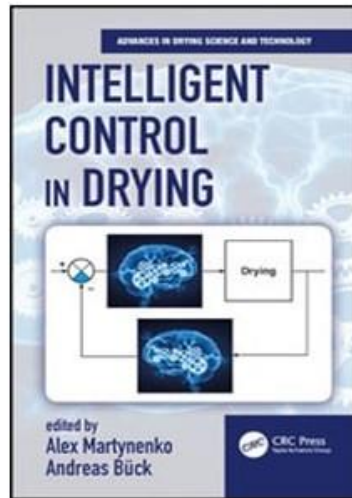
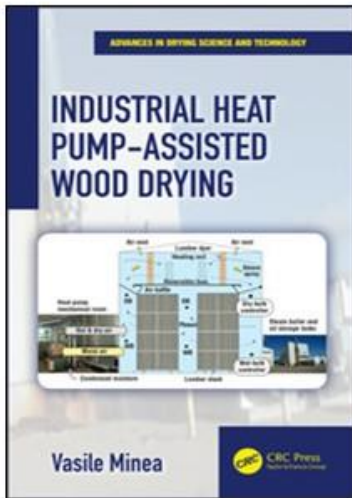
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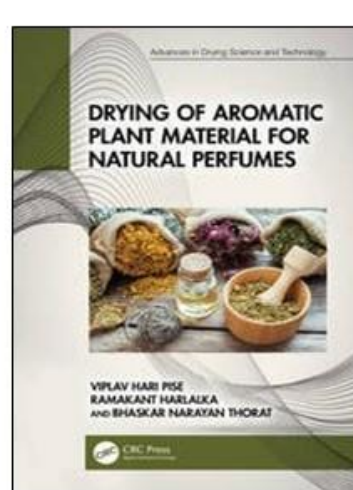
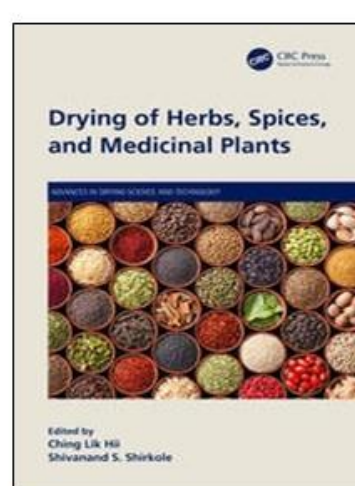
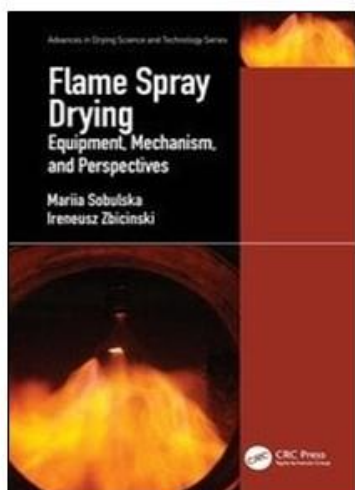
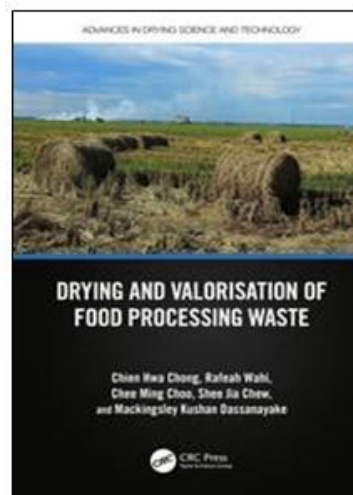
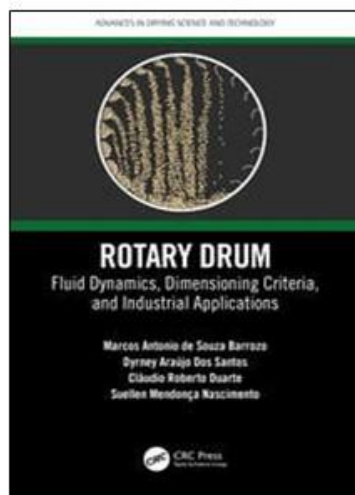
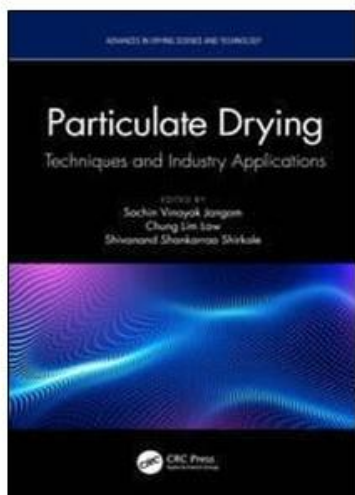
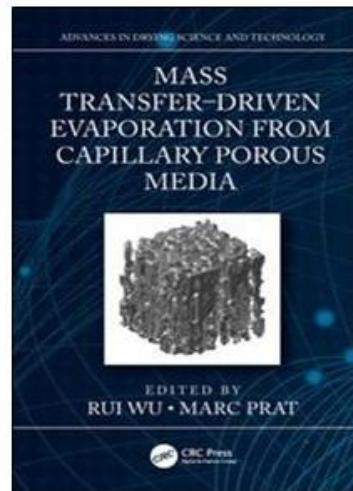
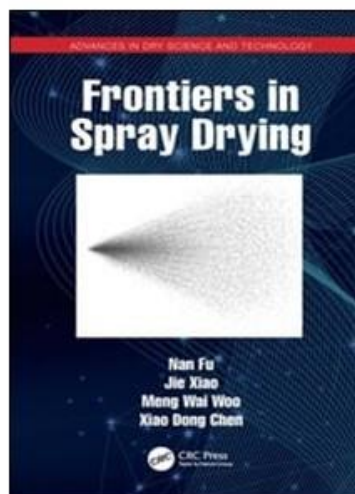
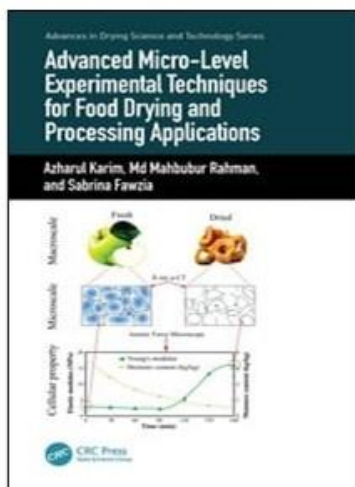
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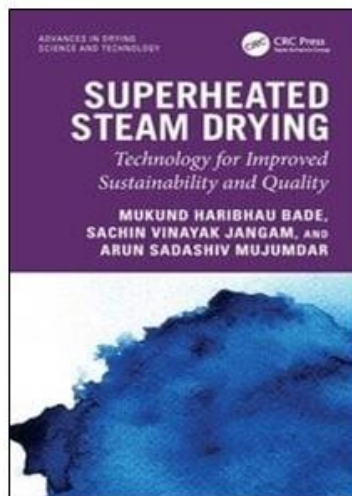
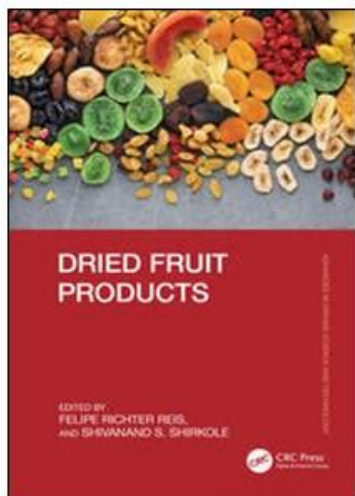
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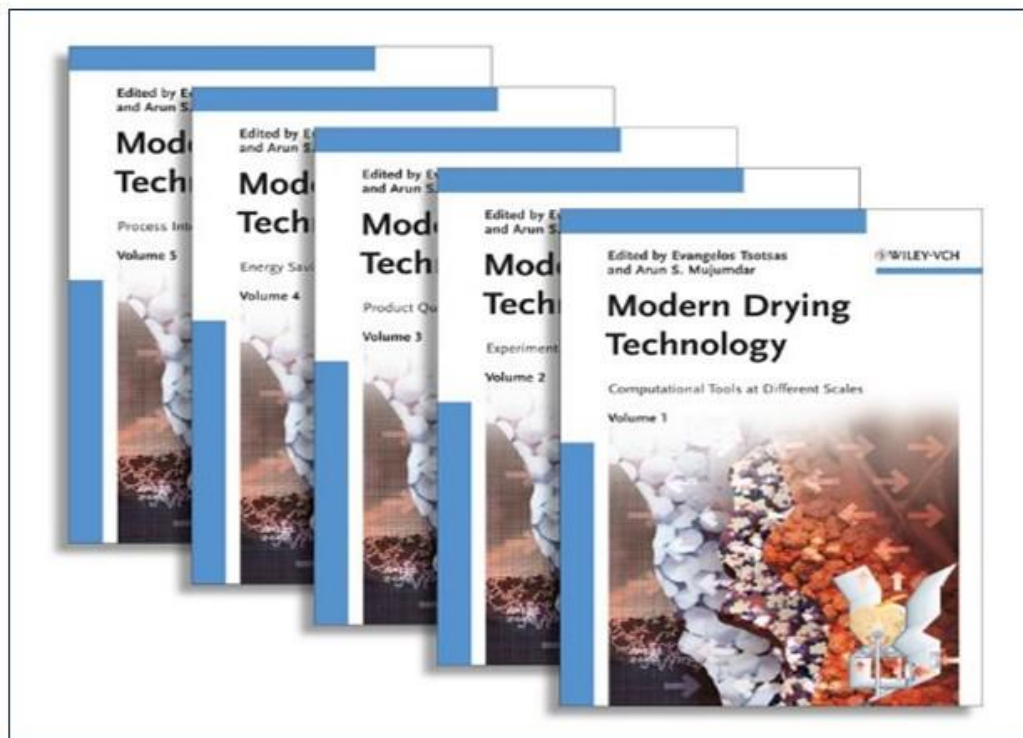
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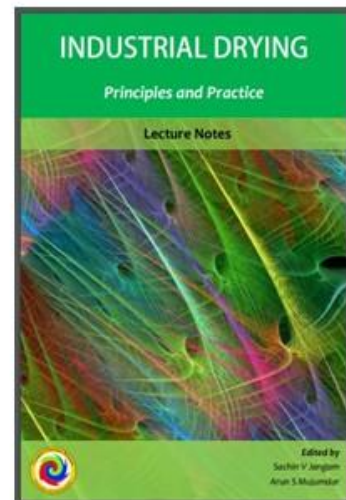
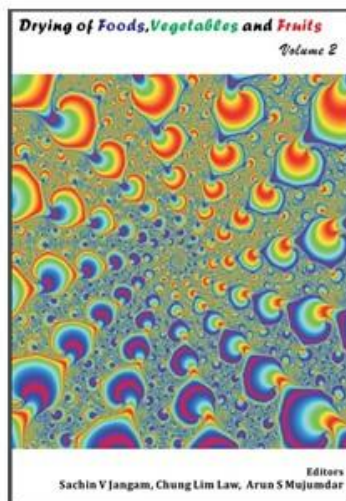
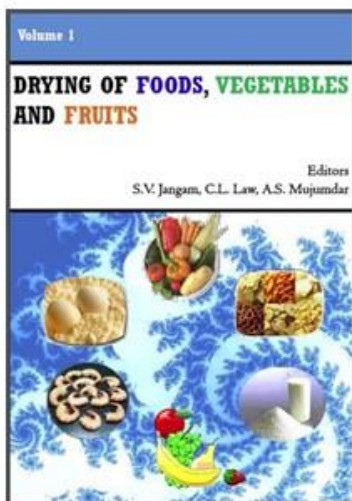


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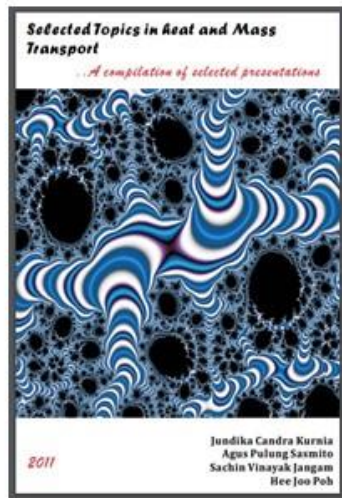
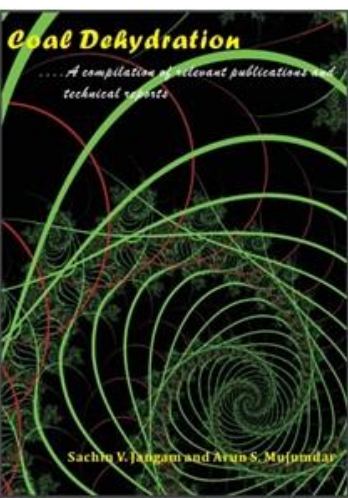
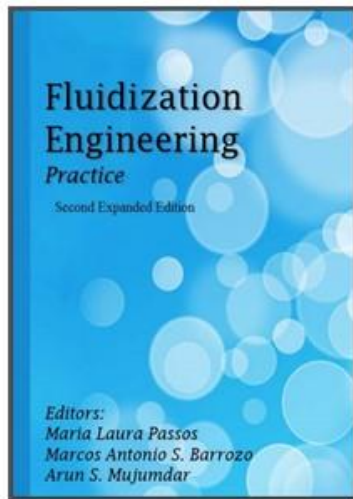
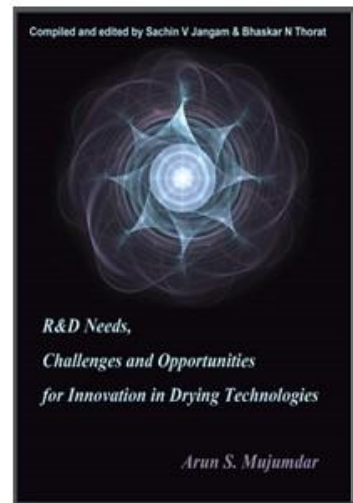
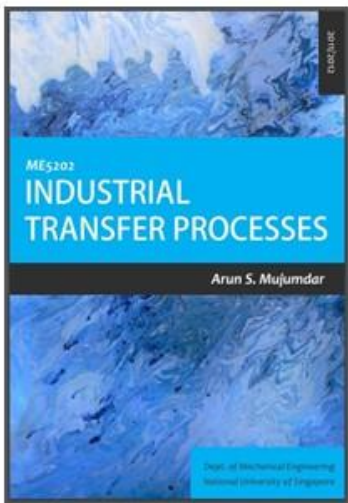
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