FACULTY OF COMPUTER SCIENCE AND MATHEMATICS

UMT

ASSOC. PROF. SHALELA MOHD MAHALI

ASSOCIATE PROFESSOR

Dr. Shalela Mohd Mahali is an expert in mathematical modeling, particularly in controlled drug delivery and numerical analysis. Her research focuses on developing analytical and numerical solutions for drug release systems, including time-dependent diffusion models and swelling hydrogel devices. She has led notable projects funded by the Ministry of Education Malaysia, contributing innovative methods for solving advection-diffusion problems and estimating diffusion coefficients. Dr. Shalela's work is well-documented in high-impact journals, reflecting her commitment to advancing applied mathematics in pharmaceutical and biomedical applications.

RESEARCHER PROFILE

Scopus 35734548700

ORCID 0000-0003-3458-991X

Google SHALELA MOHD MAHALI

CONTACT
- +6011-26089528
- shalela@umt.edu.my
- fskm.umt.edu.my

EDUCATION
- PhD in Mathematics, UNIVERSITY OF WESTERN AUSTRALIA (UWA)
- MSc in Mathematics, UNIVERSITI TEKNOLOGI MALAYSIA (UTM)
- BSc in Computational Mathematics, KOLEJ UNIVERSITI SAINS TEKNOLOGI MALAYSIA (KUSTEM)

AREAS OF EXPERTISE
- Mathematical Modeling
- Numerical Analysis
- Controlled Drug Delivery
- Advection-Diffusion Problems

SUPERVISION

COLLABORATORS

SELECTED RESEARCH PROJECTS

✓ New mathematical algorithms for solving advection-diffusion problem with non-sink moving boundary conditions, 2019-Present, Ministry of Education Malaysia. PROJECT LEADER | RM 109, 080

✓ Numerical Methods Estimation for Effective Diffusion Coefficients of Insulin Release from Bacterial Cellulose-based Hydrogel Microparticles, 2014 – 2016, Ministry of Education Malaysia. PROJECT LEADER | RM 49, 000

SELECTED PUBLICATIONS

✓ **Mohd Mahali, S.**, Setapa, A., Harun, F.N., Wang, S. Analytical Solution for Controlled Drug Release with Time-Dependent Diffusion Parameter. Mathematics, 10(21), 3951(2022).

✓ Setapa, A; Ahmad, N.; **Mohd Mahali, S.**; Mohd Amin, M.C.I. Mathematical Model for Estimating Parameters of Swelling Drug Delivery Devices in a Two-Phase Release. Polymers, 12, 2921.

✓ **Mahali, S.**M., Wang, S., Lou, X. Determination of effective diffusion coefficients of drug delivery devices by a state observer approach (2011).

✓ Amjad, M.W., Mohd Amin, M.C.I, **Mahali, S.**M., Katas, H., Ismail, I, Naeem Ul Hassan, M, Giam Chuang, V.T. Nanoscale diblock copolymer micelles: Characterizations and estimation of the effective diffusion coefficients of biomolecules release through cylindrical diffusion model (2014).

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