

## Curriculum Vitae



### **Dr. Nur Aisyah Abdul Fataf**

Senior Lecturer / Research Fellow

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### **Educational Qualifications:**

<b>Degree</b>	<b>University</b>	<b>Year</b>
<b>Ph.D.</b> , (Computational Mathematics)	Universiti Putra Malaysia (UPM)	2018
<b>M.Sc.</b> , (Mathematics)	Universiti Kebangsaan Malaysia (UKM)	2011
<b>B.Sc.</b> , (hons) (Mathematics)	Universiti Kebangsaan Malaysia (UKM)	2010

**Teaching Experiences:** 11+ years

**Research Experiences:** 7+ years

**Area of Expertise:** Nonlinear Dynamics

- Mathematical modelling, chaos theory, chaos synchronization, communication, and cryptography

### **Employment History:**

- June 2019 – Till date: **Senior Lecturer** in Centre for Defence Foundation Studies, National Defence University of Malaysia, Malaysia
- May 2019 – Till date: **Fellow Researcher** in Cyber Security and Digital Industrial Revolution Centre, National Defence University of Malaysia, Malaysia
- September 2014 – May 2019: **Lecturer** in Centre for Defence Foundation Studies, National Defence University of Malaysia, Malaysia
- May 2011 – April 2014: **Lecturer** in Faculty of Computer and Mathematical Sciences, Universiti Teknologi Mara, Malaysia

## **Awards:**

- Excellent Service Awards 2017 (NDUM)
- Incentive Scheme of research and Innovation Award 2018 (NDUM)
- Excellence in Scholarly Publication Award 2018 (UPM)
- Silver Award in Defence, Security and Sustainability Exhibition 2019 (DSS 2019)
- Hope Academician Award 2020 (NDUM)
- Gold medals in Malaysia Technology Expo (MTE 2020)
- Gold medals in Pre-University/Matriculation Innovation Competition (PIITRAM 2022)
- Gold medal in Defence, Security and Sustainability Exhibition 2022 (DSS 2022)

## **Research Projects / Grants: Current Sum of 254,700 Ringgit Malaysia**

- October 2022 – March 2023: Postdoctoral and Postgraduate Research Grants (on-going) : RM 21,000.
- July 2020 – June 2022: NDUM Short Term Grant. Nonlinear Methods to Predict Foreign Market (Completed) : RM 20,000.
- Sept 2019 – 01 March 2020: Ministry of Higher Education (Knowledge Transfer Program). Makers@university (Completed) : RM 65,000.
- August 2017 – February 2020: Ministry of Higher Education (Fundamental Research Grant Scheme). Synchronization between Two Modulated Hyperchaotic Systems for Secure Communication (Completed) : RM 55,200.
- July 2015 – April 2018: Ministry of Higher Education (Fundamental Research Grant Scheme). An Investigation into Flood Phenomena in Peninsular Malaysia using Copulas and related Non-parametric Statistics (Completed) : RM 55,500
- December 2015 – November 2017: NDUM Short Term Grant. Chaos Synchronization – based secure communication (Completed) : RM 38,000.

## **Publications**

- **Book Chapter:**

[1] **NAA Fataf**, NAL Aladdin, AS Normurniyati. Dynamical Properties and Synchronization Between Two Chaotic Blood Flow Models. **Advances in Fluid Dynamics** (2021) 865 – 875, Springer

- **Academic Journals (ISI):**

- [1] SK Palit, **NAA Fataf**, S Mukherjee, MRM Said, S Banerjee. Complexity in Synchronized and Non-Synchronized States: A Comparative Analysis and Application. **European Physical Journal Special Topics** (2017) 226: 2219 – 2234.
- [2] **NAA Fataf**, SK Palit, S Mukherjee, MRM Said, DH Son, S Banerjee. Communication Scheme Using A Hyperchaotic Semiconductor Laser Model: Chaos Shift Key Revisited. **European Physical Journal Plus.** (2017) 132: 492.
- [3] H Shaobo, **NAA Fataf**, S Banerjee K Sun. 2019. Complexity in the Muscular Blood Vessel Model with Variable Fractional Derivative and External Disturbances. **Physica A.** (2017) 526: 120904.
- [4] MF Abdul Rahim, Hayder Natiq, **NAA Fataf**, Santo Banerjee. Dynamics of a New Hyperchaotic System and Multistability. **European Physical Journal Plus.** (2019) 134: 499
- [5] **NAA Fataf**, A Gowrisankar, S Banerjee. In Search of Self-Similar Chaotic Attractor Based on Fractal Function with Variable Scaling Approximately. **Physica Scripta.** (2020) 95(7): 075206
- [6] MFA Rahim, H Natiq, **NAA Fataf**. Studying the Dynamics and Complexity of a 3D Laser Plasma System. **Solid State Phenomena.** (2021) 556 – 563
- [7] **NAA Fataf**, MFA Rahim, S He, S Banerjee. A communication Scheme based on Fractional Order Chaotic Laser for Internet of Things. **Internet of Things.** (2021) 100425
- [8] S Mukherjee, **NAA Fataf**, MF Rahim, H Natiq. Characterizing Noise-Induced Chaos and Multifractality of a Finance System. **The European Physical Journal Special Topics** (2021) 1 – 7

- **Proceeding Articles:**

- [1] **NAA Fataf**, S Mukherjee, MRM Said, UFA Rauf, AD Hina, S Banerjee. 2016. Synchronization between Two Discrete Chaotic Systems for Secure Communication. **2016 IEEE Sixth International Conference on Communications and Electronics (IEEE ICCE 2016).** 7562682, 477 – 481.
- [2] **NAA Fataf**, MRM Said. 2017. Generalized Projective Series Synchronization between Chaotic Systems and Its Application. **Journal of Fundamental and Applied Sciences.** 9(3S), 294 – 307.

### **Presentations:**

#### **Invited Talk:**

- 13 – 15 December 2018: **International Conference on Applications of Fluid Dynamics 2018 (ICAFD)** organized by Vellore Institute of Technology, India
- 08 February 2019: **INSPEM Weekly Seminar (06/2019)** organized by Institute for Mathematical Research, Universiti Putra Malaysia, Malaysia
- 15 – 16 July 2019: **International Symposium on Recent Trends in Mathematical Sciences (ISRTMS)** organized by Vellore Institute of Technology, India
- 17 July 2019: **International Seminar on Recent Advancement in Mathematics (ISRAM 2019)** organized by Thiruvalluvar University, India
- 19 – 20 September 2019: **International Symposium on Quantum and Complexity Sciences (QUANTPLEXITY 2019)** organized by Universiti Putra Malaysia, Malaysia
- 9 – 11 March 2022: **International Conference on Nonlinear Dynamics and Applications (INCDA 2022)** organized by Sikkim Manipal University, India

#### **Presenter:**

- 27 – 29 July 2016: **2016 IEEE Sixth International Conference on Communications and Electronics (IEEE ICCE 2016)** organized by Hanoi University of Science and Technology.
- 15 – 17 August 2016: **2016 International Conference on Defence and Security Technology** organized by National Defence University of Malaysia.
- 11 – 13 November 2019: **7<sup>th</sup> International Conference on Solid State Science and Technology 2019** organized by National Defence University of Malaysia.
- 23<sup>rd</sup> March 2021: **3<sup>rd</sup> International Conference of Information and Communication Technology Malaysia (ICICTM 2021)** organized by Universiti Kuala Lumpur and Universiti Pertahanan Nasional Malaysia.

#### **Membership in Professional Society:**

- Lifetime member of Malaysian Mathematical Sciences Society (PERSAMA)
- Lifetime member of International Association of Engineers (IAENG)

**Reviewer for the Journal**

- [1] **International Journal of Software Engineering & Computer Systems (IJSECS)**
- [2] **Solid State Phenomena**
- [3] **Advances in Science, Technology and Engineering Systems Journal**
- [4] **Journal of Mathematics and Statistics**