
MD. ABDUS SALAM, PhD, AMIChemE, MyIEM

**PERSONAL DETAILS**

Full Name : MD. ABDUS SALAM
Passport No : BH0277367
Nationality : Bangladeshi
Telephone No (Mobile) : +88 01881609053 (Bangladesh)
E-mail Address : salam.bcsir@gmail.com, ctg.salam@gov.bd.com

CURRENT POSITION**Project Director**

"Establishment of Hydrogen Energy Laboratory"-Project

&

Senior Principal Engineer,

Institute of Mining, Mineralogy & Metallurgy (IMMM), Joypurhat-5900
Bangladesh Council of Scientific and Industrial Research(BCSIR).

PROFESSIONAL MEMBERSHIP

1. Associate Member: Institution of Chemical Engineers (**IChemE**)
Membership No: 99970498
2. Affiliate Member: The Institution of Engineers, Malaysia (**MyIEM**)
Membership No: 86336
3. Life time member: Bangladesh Physical Society (BPS), Dhaka
Membership No: LM J0012

EXPERIENCES

Position	Institution/Company	Period	Responsibilities
Project Director & Senior Scientific Officer	Bangladesh Council of Scientific and Industrial Research (BCSIR)	24 July 2017-- -2020	Implementing responsibilities to Establishment of hydrogen energy laboratory.
Scientific Officer	Bangladesh Council of Scientific and Industrial Research (BCSIR)	October, 2016--23 July, 2017	Research , Publication and R&D.
Postdoctoral Research fellow	Chemical Engineering Department, Universiti Teknologi PETRONAS, Malaysia	Jan, 2015 to September, 2016	Research and Publication
PhD Researcher (Chemical Engineering Dept.)	Chemical Engineering Department, Universiti Teknologi PETRONAS, Malaysia	2011 to 2014	PhD Research & Teaching
Scientific Officer	Bangladesh Council of Scientific and Industrial Research (BCSIR)	Sep, 2011-23 July, 2017	Research , Publication and R&D.
Research Chemist	Bangladesh Council of Scientific and Industrial Research (BCSIR)	July 2006 to Sep. 2011	Research, publication and Industrial collaboration

QUALIFICATIONS

Degree	Institution	Thesis
PhD in Chemical Engineering.	Universiti Teknologi PETRONAS, Malaysia.	hydrogen Adsorption Process Performances using Nano-crystalline Hydrotalcite Based Mixed Oxide Adsorbent.

RESEARCH AREA/INTEREST

- Hydrogen Production, storage and Purification, Hydrogen Fuel Cell

TEACHING

- Chemical Engineering thermodynamics
- Unit Operation (Heat and Mass transfer)
- Separation Processes
- Fluid flow & Transport processes

CONTRIBUTION AT A GLANCE:

Contribution Criteria	Numbers	Remarks
Journal Publications (Scopus, ISI indexed)	42 (28)	Total impact =50.79 (IF) As Main & corresponding author
Conference publication	11	As Main & corresponding author
Citation	440	Since 2009
i-index	15	
h-index	11	
Books	3	1. Computational Toxicity Prediction, 2. Thermodynamics, 3. Ionic Liquids as Bio-catalyst. & I-Window, MS (Molecular Sieves)
Research Grant awarded	12	Foreign research grant: 3. Grants awarded by MOSTI, Malaysia, 7 Grants awarded by BCSIR, MOST, Bangladesh ADP: Establishment of hydrogen energy laboratory
Journal papers Reviewed	25	As a reviewer since 2013
Teaching & Supervision PhD in Chem. Eng. MS in Chem. Eng. BS in Chem. Eng.	2 4 16	Ongoing 2 completed + 2 ongoing Completed
Best research achievement/ Invention	2	1. Novel Nano-materials Synthesis for hydrogen storage. 2. Hydrogen sorption process (Pilot) design and fabrication
Chemical Process design and fabrication	6	a. Hydrogen adsorption fixed bed reactor/hydrogen sorption process. b. Thermo-catalytic hydrocarbon cracking process. c. Biomass Pyrolyser for value added Products.(MS, Catalyst) d. Hydrogen production Process Plant .

PUBLICATION LIST

Journal Paper

2020

1. Dai-Viet N Vo and Bawadi Abdullah A Awad, M A Salam, Hydrogen production via thermo-catalytic decomposition of methane over Ni-Cu-Pd/Al₂O₃ catalysts, *Materials Science and Engineering*, 737, 042006
2. Ali Awad, Md Abdus Salam, Bawadi Abdullah, Synthesis, Characterization and Performance Evaluation of Promoted Ni-based catalyst for Thermo-catalytic Decomposition of Methane, *Chemistry Select*, Accepted (July 2020)
3. Salam M A, Hossain T, Papri N., Ahmed K, Habib M S., Uddin M S., Wilckens R.S, Hydrogen Production Performances via Steam Reforming over Hydrotalcite Derived Catalyst: A Sustainable Energy Production review, *Advances in Chemical Engineering and Science*, Accepted (August 2020),
4. M. Abdus Salam, Md Shehan Habib, Paroma Arefin, Kawsar Ahmed¹, Md. Sahab Uddin Tareq Hossain¹ and Nasrin Papri: Effect of Temperature on the Performance Factors and Durability of Proton Exchange Membrane of Hydrogen Fuel Cell: A Narrative Review, *Material Science Research India*, **Volume 17 Number 2, August 2020**.

2019

1. Ali Awad, Nurliyana Masiran, M Abdus Salam, Dai-Viet N Vo, Bawadi Abdullah, Non-oxidative decomposition of methane/methanol mixture over mesoporous Ni-Cu/Al₂O₃ Co-doped catalysts, *International Journal of Hydrogen Energy*, 44(37), 20889-20899
2. M. Abdus Salam, Kawsar Ahmed, Tareq Hossain, Md. Shehan Habib, Md. Sahab Uddin, Nasrin Papri, Prospect of Molecular Sieves Production using Rice Husk in Bangladesh: A Review, *International journal of Chemistry, Mathematics and Physics (IJCMP)*, 3(6), 105-134

2018

1. M Abdus Salam, Kawsar Ahmed, Tareq Hossain, Nazma Akter, A review of hydrogen production via biomass gasification and its prospect in Bangladesh, *International Journal of hydrogen energy*, August 2018, 1-30
2. Anuar Fauad' Syed Muhammad· Nurliyana Masiran, Md Abdus Salam, Bawadi Abdullah, Recent advances in cleaner hydrogen productions via thermo-catalytic decomposition of methane: Admixture with hydrocarbon., *International Journal of Hydrogen Energy*, 11 October 2018, **Volume 43, Issue 41**, Pages 18713-18734.
3. Ali awad, Nurliyana Masiran, M Abdus Salam, Bawadi Abdullah, Non-oxidative decomposition of methane/ methanol mixture over mesoporous Ni-Cu/Al₂O₃ Co-doped catalyst, *International Journal of hydrogen energy*, April 2018, 1-18

2017

1. U. Sikander, S. Sufiana, M. Abdus Salam, "A review of hydrotalcite based catalysts for hydrogen production systems, International Journal of Hydrogen Energy" Volume 42, Issue 31, 3 August 2017, Pages 19851-19868, **IF=3.58**
2. M. Abdus Salam, Bawadi Abdullah "Catalysis Mechanism of Pd promoted γ -alumina in Hydrogen Production: A Density Functional Theory Study" Materials Chemistry and Physics, Volume 188, 15 February 2017, Pages 18-23, 2017, <http://dx.doi.org/10.1016/j.matchemphys.2016.12.022>, ISI and SCOPUS INDEXED, **IF= 2.10**
3. M. Abdus Salam, Bawadi Abdullah, M. Aminul Islam, Temperature programmed analysis of hydrogenation and dehydrogenation of magnesium (Mg), nickel (Ni) and aluminum (Al) containing mixed oxides, Chemical Engineering Research and Design, Volume 118, February 2017, Pages 103-111. DOI:<http://dx.doi.org/10.1016/j.cherd.2016.10.039>, ISI and SCOPUS INDEXED, **IF=2.5**
4. M. Abdus Salam, Suriati Sufian, A DFT Study of Hydrogen Adsorption Kinetics and Thermodynamics on Mixed Oxides of $Mg_{0.5}Ni_{0.25}O_{1.13}$, Journal of Engineering and Applied Sciences, Volume 12, 2017, 44314436, DOI:10.3923/jeasci.2017.4431.4436,<http://medwelljournals.com/abstract/?doi=jeasci.2017.4431-4436>, **IF= 0.14**
5. Ali awad, Abdus salam, Bawadi abdullah, Hydrogen Production by Decomposition of Methane and Methanol Mixture over Ni-Pd/ Al_2O_3 , Journal of the Japan Institute of Energy , 96, 445-450 (2017)

Conference paper

6. Ali awad, Abdus Salam, Bawadi Abdullah, Thermocatalytic Decomposition of Methane/Methanol Mixture for Hydrogen Production: Effect of Nickel Loadings On Alumina Support, 2nd International Conference on Applied Science and Technology 2017 (ICAST'17), <https://doi.org/10.1063/1.5005363>.

2016

- [1] M. Abdus Salam, I.M Mujtaba, Anita Ramli, Bawadi Abdullah, Structural feature based computational Approach of Toxicity Prediction of Ionic liquids: Cationic and Anionic Effects on Ionic Liquids Toxicity, Journal of Molecular Liquids, 224, 363, 2016 /<http://dx.doi.org/10.1016/j.molliq.2016.09.120>, ISI and SCOPUS indexed, **IF =2.79**
- [2] M Abdus Salam, Muhammad Ibrahim Abdul Mutalib, Toxicity Prediction of Ionic Liquids Using structural feature based computational Approach: A DFT study. Journal of Chemosphere 2016 (Under Review), ISI and SCOPUS indexed, **IF = 3.69**
- [3] Ali Awad, M. Abdus Salam, Bawadi Abdullah, Advances of hydrocarbon based hydrogen production technologies, Nanomaterials, 2016, **IF= 1.8**

Conference paper

- [4] M Abdus Salam, Bawadi abdullah, The Effect of Co-solvent on the Solubility of a Sparingly Soluble Crystal of Benzoic Acid, Procedia Engineering (ICPEAM 2016), 16 August, 2016, **IF= 0.74**
- [5] Umair Ahmed, Suriati sufian, M Abdus Salam, Synthesis and Structural Analysis of Double layered NiMg-Al Hydrotalcite Like Catalyst, Procedia Engineering (ICPEAM 2016), 16 August, 2016, **IF= 0.74**
- [6] Nurliyana Masiran, Bawadi Abdullah, M Abdus Salam, Improvement on Coke Formation of CaONi/ Al_2O_3 Catalysts in Ethylene Production Via Dehydration of Ethanol, Procedia Engineering (ICPEAM 2016), 16 August, 2016, **IF= 0.74**

2015

[1] M Abdus Salam, M Aminul Islam, Temperature programmed analysis of hydrogenation and dehydrogenation of $Mg_{0.5} Ni_{0.25} Al_{0.25} O_{1.13}$ mixed oxides. International Journal of Applied Engineering Research (IJAER), SCOPUS indexed.

Conference paper

[1] M Abdus Salam A DFT study of Hydrogen adsorption kinetics and thermodynamics on mixed oxides of $Mg_{0.5} Ni_{0.25} Al_{0.25} O_{1.13}$, IPN-IWNEST Conference, 9-10 October 2015.

2014

[1] M. Abdus Salam, Suriati Sufian and bawadi Abdullah*, A Study of Hydrogenated Microstructure and Hydrogenation Properties Using the Density Functional Theory (DFT), Nanomaterials, 2014, pages 1-7, 2014. IF= 1.8

[2] M. Abdus Salam*, Suriati Sufian, "Hydrogen Adsorption Capacity Investigation of Ni-Co-Al Mixed Oxides", Advanced Materials Research, 917, pp 360-364, 2014 [ISI, Scopus] doi:10.4028/www.scientific.net/AMR.917.360, **IF= 0.6**.

2013

[1] M. Abdus Salam*, Suriati Sufian and T Murugasen, "Catalytic hydrogen adsorption of nano-crystalline hydrotalcite derived mixed oxides," Journal of Chemical Engineering Research and Design, 91, pp-26392647, December, 2013 [ISI, Scopus], DOI: 10.1016/j.cherd.2013.05.024; <http://dx.doi.org/10.1016/j.cherd.2013.05.024>, **IF= 2.5**

[2] M. Abdus Salam*, Suriati Sufian and T Murugasen "Characterization of nano-crystalline Mg-Ni-Al hydrotalcite derived mixed oxides as hydrogen adsorbent," Journal of Material Chemistry and Physics, 142, pp. 213-219, October, 2013; [ISI, Scopus] <http://dx.doi.org/10.1016/j.matchemphys.2013.07.008>, **IF= 2.3**

[3] M. Abdus Salam*, Suriati Sufian, Ye Lwin, "Hydrogen Adsorption Study on Mixed Oxides using the Density Functional Theory" Journal of Physics and Chemistry of Solids 74 (4), pp.558-564, April, 2013, [ISI, Scopus] <http://dx.doi.org/10.1016/j.jpcs.2012.12.004>, **IF=2.04**

[4] M. Abdus Salam*, Suriati Sufian and T Murugasen "Hydrogen storage of a fixed bed of Nano-crystalline mixed oxides," ISRN Nanomaterials, Volume 2013, pp.1-10, January, 2013, [ISI, Scopus] <http://dx.doi.org/10.1155/2013/539534>, **IF =1.8**

[5] M Abdus Salam*, Ye Lwin, Suriati Sufian, "Synthesis of Nano-structured Ni-Co-Al Hydrotalcites and Derived Mixed Oxides," Advanced Materials Research, Vol. 626, pp. 173-177, December, 2012, [ISI, Scopus] doi:10.4028/www.scientific.net/AMR.626.173, **IF= 0.6**

[6] M Abdus Salam*, Suriati Sufian, T. Murugesan, "Hydrogen storage investigation of fixed bed of nanocrystalline Mg-Ni-Cr mixed oxides," Advanced material research, Vol. 701, pp 179-183, May, 2013, [ISI, Scopus], doi:10.4028/www.scientific.net/AMR.701.179, **IF =0.6**

[7] M Abdus Salam*, Ye Lwin, Suriati Sufian, " Synthesis and Characterization of Nano-structured Mixed Oxides," Applied Mechanics and Materials Vols. 446-447, pp196- 200, 2014, [ISI, Scopus] doi:10.4028/www.scientific.net/AMM.446-447.196, **IF= 0.13**

Conference paper

[1] M Abdus Salam*, Suriati Sufian, T. Murugesan, Hydrogen storage investigation of fixed bed of nanocrystalline Mg-Ni-Cr mixed oxides, Advanced material engineering and technology, 2013

[2] M Abdus Salam*, Suriati Sufian, T Murugasen, "Synthesis and characterization of nano-structured NiCo-Cr hydroxalcite oxides derived mixed," Annual Postgraduate Conference (APC), 2013.

[3] M Abdus Salam*, Suriati Sufian, T Murugasen, Synthesis and Characterization of Nano-structured Mixed Oxides, 3rd International Conference on Nanomaterials and Electronics Engineering, 2013.

2012

[1] M Abdus Salam*, C.G. Jesudason, Keshav N. Shrivastava , M. Aminul Islam, "A structural-feature based computational approach for toxicity prediction of water-soluble arsenicals," Physics and Chemistry of Liquids, Vol.50(2), pp.173- 186, March, 2012, [ISI, Scopus]
<http://dx.dio.org/10.1080/00319104.2010.527841>, IF= 0.6

Conference paper

[2] M Abdus Salam*, Ye Lwin, Suriati Sufian, Hydrogen Adsorption Capacity Investigation of Ni-Co-Al Mixed Oxides, International Conference of process engineering and advanced materials (ICPEAM), 2012

2011

[1] M Abdus Salam*, "A DFT Calculation: Toxicity of Water Soluble Arsenicals," Bangladesh J. Sci. Ind. Res. 46(2), pp.177-182, June, 2011; DOI: <http://dx.doi.org/10.3329/bjsir.v46i2.6052>

2009

[1] M. Abdus Salam*, B.P Barua, M.S.I. Aziz "Augmented space recursion method for the study of electronic states of binary alloys", Bangladesh J. Sci. Ind. Res., 44(3), pp.255-264, 2009; DOI: 10.3329/bjsir.v44i3.

[2] M. Abdus Salam*, Kabir ahmed, A.J.M. Morshed, "Measurement of natural and artificial radionuclides of Stevia rebaudiana bertonii extract" Bangladesh J. Sci. Ind. Res., 44(4), pp. 467-472, 2009; DOI: 10.3329/bjsir.v44i4.4600

2007

[1] M. Abdus Salam*, B.P Barua, Minhaj Uddin "Studies on transition temperature of Superconducting materials related to Elastic constant", Bangladesh J. Sci. Ind. Res., Vol. 42(2) , pp.203-212, 2007;

CHEMICAL PROCESS DESIGN & FABRICATION:

1. Title : HYDROGEN PRODUCTION VIA BIOMASS GASIFICATION
Duration : 2017-2020
Plant Site : BCSIR Laboratories, Chittagong

2. Title : FIXED BED PYROLYSER FOR BIOMASS PYROLYSIS
Duration : 2015- 2016
Plant Site : BCSIR Laboratories, Chittagong, Chemical Engineering department, Universiti Teknologi PETRONAS, Malaysia.

3. Title : FIXED BED REACTOR FOR HYDROGEN SORPTION
Duration : 2011- 2014
Plant Site : Chemical Engineering department, Universiti Teknologi PETRONAS, Malaysia.

4. Title : TUBULAR REACTOR FOR HYDROCARBON REFORMING
Duration : 2009- 2010
Plant Site : BCSIR Laboratories, Chittagong & Chemical engineering department, University of Malaya

BOOK PUBLICATION

- | | |
|----------------------|---|
| 1. Publication Title | A hand book of hydrogen sorption mechanism of nano-crystalline mixed oxides |
| Authors | Md Abdus Salam, T Murugasen |
| Publication Type | Book |
| Publication Date | Will be published soon |
| Publisher | Springer |
| Publication Media | Printed Hardcopy, & online version |
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- | | |
|----------------------|--|
| 2. Publication Title | Structural Feature Based Computational Approach Of Toxicity Prediction: Anions and Cationic effect of Ionic liquids. |
| Authors | Md Abdus Salam, Ali Awad |
| Publication Type | Book |
| Publication Date | 2017 |
| Publisher | Lambert publication, USA |
| Publication Media | Printed Hardcopy, & online version |
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- | | |
|----------------------|--------------------------------------|
| 3. Publication Title | Heat and Thermodynamics |
| Authors | Md Abdus Salam, Bikiran Prasad Barua |
| Publication Type | Book |
| Publication Date | 2009 |
| Publisher | Dikdarshon publication, Bangladesh |
| Publication Media | Printed Hardcopy |

TRAINING/COURSES/WORKSHOPS

1. Training Programme on "Innovation in Public Service" Access to information (a2i) Programme, Prime Minister's office, Bangladesh & BCSIR, 16-17 November, 2017
2. Training on "Maintenance & operating system of Thermogravimetric Analysis (TG/DTA)" BCSIR, Dhaka. 29-31 October, 2017
3. Workshop on "Design and Delivering of Flipped Class room" Universiti Teknologi PETRONAS, Malaysia, 18-19 May, 2016
4. Workshop on "Massive Open Online Course (MOOC)" Universiti Teknologi PETRONAS, Malaysia, 21-22 May, 2016
5. Training on "Problem Based Learning" Universiti Teknologi PETRONAS, Malaysia, 17-18 December, 2015

6. Training on "Writing Final exam Question and OBE" Universiti Teknologi PETRONAS, Malaysia, 28-29 October, 2015.
7. Training on "Active Learning, Part 2: Developing Learning Teams using Cooperative Learning" organized by Universiti Teknologi PETRONAS, Malaysia, 10-11 June, 2015.
8. Training on "Active Learning, Part 1: Effective Implementation of Student Centered Learning Technique for OBE" organized by Universiti Teknologi PETRONAS, Malaysia, 10-11 March, 2015.
9. Workshop on "Effective education Delivery" organized by Universiti Teknologi PETRONAS, Malaysia, 4-6 February, 2015.
10. Lecturer Series on "Oil and Gas management" organized by Total Professeur's Associes, November, 2013, University Teknologi PETRONAS, Malaysia
11. Short course on electron diffraction and electron energy loss spectroscopy for TEM, 2012; University Teknologi PETRONAS, Malaysia, 2012
12. Workshop on "The Art of writing publishable scientific manuscript and beyond", Penang, Malaysia. 2012.
13. Workshop on "Material Studio (DMOL3)" University of Putra Malaysia(UPM), Malaysia, 2009
14. Workshop on "Gaussian 09W and ADF, University of Malaya, Malaysia, 2009
15. International workshop on "Indigenous capability of technological development in Medical electronics, Islamic University and Technology, Bangladesh.20008

COMMITTEE MEMBER IN THE UNIVERSITY

1. Conference organizing Committee member
"Global Summit of Process safety 2015"
2. Departmental Committee member , 2014-2015
3. Final Year project Coordinator, 2015

EDITORIAL/REVIEWER APPOINTMENT

Reviewer:

1. International Journal of Hydrogen energy,
2. ACS Applied nano-materials,
3. Environmental Technology
4. Advanced Engineering materials
5. ICPEAM 2016 Reviewer

5. Book Reviewed:

Title: Relativistic Thermodynamics (2016)
Horizon Research Publishing, USA

ACHIEVEMENTS /AWARDS

Scholarship: UTP postgraduate scholarship (2011-2013)

Bronze Medal: 25th International Invention, Innovation & Technology Exhibition (ITEX)'2014

Poster title: i-window

RESEARCH GRANTS (ONGOING RESEARCH PROJECTS)

A. RESEARCH PROJECTS ON SCIENCE AND ENGINEERING:

- Projects Title:**
- 1. Development Project (ADP)** : Establishment of hydrogen energy laboratory
Funding Organization : BCSIR
Contribution : PI
Year of Funding : 2018-2021 Amount: BDT 48.73 corer
 - 2. Projects Title** : Hydrogen Production from sub-quality natural gas (SQNG)
Funding Organization : BCSIR
Contribution : PI
Year of Funding : 2017-2018 Amount: BDT 20,00000
 - 3. Annual Development Project** : Establishment of hydrogen energy technology Laboratory
Funding Organization : MOSTI , Bangladesh
Contribution : PI
Year of Funding : 2018-2021 Amount: BDT 50,00,00000
(Under Approval)
 - 4. Projects Title** : A structure feature based toxicity prediction of Ionic liquids
Funding Organization : UTP (STIRF), Malayia
Contribution : PI
Year of Funding : 2015-2016 Amount: RM 25,000
 - 5. Projects Title** : A novel study of hydrogen separation from gas mixture using vanadium based membrane.
Funding Organization : FRGS, Malaysia
Contribution : PI
Year of Funding : 2015-2018, Amount: not fix yet
 - 6. Projects Title** : Ethylene production from Bioethanol dehydration Over Bimetallic Akline earth oxide-alumina catalyst
Funding Organization : Y-UTP , Malaysia
Contribution : As co-investigator
Year of Funding : 2013-2016 Amount: RM 409,700
 - 7. Project Title** : A new study on catalytic mechanism of carbon nanofiber-supported catalyst in nitrogen hydrogenation reaction
Funding Organization : Fundamental Research Grant Scheme (FRGS), Malaysia
Amount : RM 96000
Duration : 2014-2016
Contribution : as co-researcher
 - 8. Project Title** : Understanding Reaction Mechanism for Hydrogen Production via Cracking of Hydrocarbons using the Density Functional Theory.
Funding Organization : Fundamental Research Grant Scheme,(FRGS), Malaysia.
Amount : RM 146000
Duration : 2015-2017
Contribution : as co-researcher

9. Project Title : Studies on Transition Temperature of Superconducting Materials

Funding Organization : Bangladesh Council of Scientific and Industrial Research

Amount : BDT. 500000

Duration : June, 2007 – June, 2008

Project leader : Md Abdus Salam

Co-researchers : Bikiran Prasad Barua, Minhaz Uddin.

10. Project Title : Toxicity of Water Soluble Arsenicals (Computational study)

Funding Organization : Bangladesh Council of Scientific and Industrial Research

Amount : BDT. 500000

Duration : June, 2008 – June, 2009

Project leader : Md Abdus Salam

Co-researchers : Bikiran Prasad Barua, Kabir Ahmed

B. RESEARCH GRANT ON TEACHING AND LEARNING

1. Project title : Engineering students understanding of thermodynamics (ESUTH) – an innovative teaching and integrated research

Funding Organization : Centre for excellence in teaching & learning,UTP, Malaysia

Contribution : PI

Year of Funding : 2015-2016, Amount: RM 25,000