



## CURRICULUM VITAE

**Prof. Dr. Ratnawulan, M.Si.**

**Faculty:** Fakultas Matematika dan IPA

**Study Programs:** Pendidikan Fisika

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### Biography

#### Scopus of the Last 5 Years

The Characterization of the Hydrophobic Surface of Nanocomposites Aloe vera/PS for Antimicrobial Pathogens. Science and Technology Indonesia, Putri L.Z., 2023

The Synthesis of CuO/Polystyrene Nanocomposite Superhydrophobic Layer using The Spin Coating Method. Science and Technology Indonesia, Ratnawulan, 2022

The Effect of Calcium Carbonate ( $\text{CaCO}_3$ ) and Polystyrene (PS) Composition on Contact Angle and Compressive Strength of Hydrophobic Cement Mortar. Journal of Physics: Conference Series, Septiana D., 2022

The Effect of Sintering Temperature on Hydrophobic characteristic of Silica Manganese/Polystyrene (SiMn/PS) Nanocomposite. Journal of Physics: Conference Series, Ratnawulan, 2022

Effect of composition  $\text{CaCO}_3$ /polyurethane (PU) on contact angle of the surface and compressive strength of mortar. Journal of Physics: Conference Series, Nazein, 2022

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Meta-analysis of the influence of 21st century high school students' skills in learning physics using a guided inquiry model. Journal of Physics: Conference Series, Hidayatullah S., 2022

The Effect of Variation Calcination Temperature of Polystyrene/Tetrahydrofuran (PS/THF) Hydrophobic Layers on Contact Angle and the Compressive Strength of Cement Mortar. Journal of Physics: Conference Series, Syaputri O., 2022

The Effect of SiMn/PS Composition on Hydrophobic Properties of Nanocomposite Thin Layer. Journal of Physics: Conference Series, Ratnawulan, 2022

Synthesis and characterization of polystyrene/cuo- $\text{Fe}_2\text{O}_3$  nanocomposites from natural materials as hydrophobic photocatalytic coatings. Crystals, Ratnawulan R., 2021

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Analysis of contextual-based physics textbook development on static fluid materials for 21<sup>st</sup> century skills learning. Journal of Physics: Conference Series, Oktrisma Y., 2021

The practicality of interactive multimedia integrated science based on guided inquiry with theme energy in the life that integrates of learning for the 21<sup>st</sup> century. Journal of Physics: Conference Series, Ariani R., 2021

The effect of calcination temperature on the structure of iron oxide phase from west Sumatra. Journal of Physics: Conference Series, Fauzi A., 2021

The Characteristic of Luciferase cDNA of Lamprigera sp. (Lampyridae: Coleoptera). Journal of Physics: Conference Series, Ahda Y., 2021

Synthesis and characterization Hausmannite (Mn<sub>3</sub>O<sub>4</sub>) nanoparticle of manganese ores prepared by high-energy milling. International Journal of Advanced Science and Technology, Ratnawulan, 2020

Validity of science student books with the theme of energy in life based integrated local materials using integrated models for 21<sup>st</sup> century learning. Journal of Physics: Conference Series, Hidayat Z., 2020

Validity of integrated science teacher's book with the themes of blood fluid using integrated connected type learning in the 21<sup>st</sup> century. Journal of Physics: Conference Series, Helfira R., 2020

Analysis of interactive media development of VIII grade integrated science with simple machine themes on human muscular and skeleton system using connected types integrated 21<sup>st</sup> century learning. Journal of Physics: Conference Series, Nurhafifah, 2020

Validation of Integrated Science Teacher book with the theme of the Human Body System Adaptation to Temperature Changes using Integrated Type of 21<sup>st</sup> Century Learning. Journal of Physics: Conference Series, Samra A., 2020

Validation of integrated science teacher book integrated mode with scene life energy in the regional local content based sijunjung for 21<sup>st</sup> century skills. Journal of Physics: Conference Series, Sarimi R.S., 2020

Validity of integrated science teacher's book on junior high school based on character with the theme of cohesion and adhesion on living with shared model. Journal of Physics: Conference Series, Kendedes T.A., 2020

Analysis of interactive media integrated natural science with energy themes in the life of using integrated types that integrate of learning for the 21<sup>st</sup> century. Journal of Physics: Conference Series, Ariani R., 2020

Validity of integrated natural science teacher book with theme senses of sight and optical devices using connected model integrated 21<sup>st</sup> century learning. Journal of Physics: Conference Series, Melati A., 2020

Optimization of hydrophobic nanocomposite thin film from silica/polietilen. Journal of Physics: Conference Series, Fauzi A., 2020

Design of integrated science student book theme adaptation of the human body to change temperature integrated 21<sup>st</sup> century learning using integrated types. Journal of Physics: Conference Series, Supriadi T., 2020

An analysis of development of student's worksheets with the theme integrated science energy in life by using integrated type of integrated learning in 21<sup>st</sup> century. Journal of Physics: Conference Series, Gusti D.A., 2020

Development of high school physics class XI book, based on concept map to enhance the high-level thinking skills (HOTS). Journal of Physics: Conference Series, Gusnedi G., 2020

Spectral properties of Lampyris Noctiluca firefly from Sumatra. Journal of Physics: Conference Series, Ratnawulan, 2020

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Analysis of Students Worksheet (LKPD) integrated science with the theme of the motion in life using integrated connected type 21<sup>st</sup> century learning. Journal of Physics: Conference Series, Marshel J., 2020

Analysis of interactive media integrated natural science by the motion themes in life using integrated connected type 21<sup>st</sup> century learning. Journal of Physics: Conference Series, Kurniawati A., 2020

### Web of Science (WoS) of the Last 5 Years

Synthesis and Characterization of Polystyrene/CuO-Fe<sub>2</sub>O<sub>3</sub> Nanocomposites from Natural Materials as Hydrophobic Photocatalytic Coatings. CRYSTALS, Ratnawulan, R; Ramli, R; Fauzi, A; Ae, SH., 2021

### Google Scholar of the Last 5 Years

Development of student competencies in integrated science subjects class VIII based on cognitive technology in the era of society 5.0. Linguistics and Culture Review 6 (S3), 237-247, 2022, S Rahmiwati, F Festiyed, R Ratnawulan, 2022

The Level Of Effectiveness Of Student Books Using The Problem Based Learning Model To Improve 21st Century Skill. International Journal of Progressive Sciences and Technologies 31 (2), 115-120, 2022, Y Oktrisma, R Ratnawulan, 2022

Pengembangan Multimedia Interaktif IPA Terpadu berbasis Inkuiri Terbimbing dengan Tema Energi dalam Kehidupan Terintegrasi Pembelajaran Abad 21. Jurnal Penelitian Pembelajaran Fisika 8 (1), 100-112, 2022, R Ariani, R Ratnawulan, 2022

The Synthesis of CuO/Polystyrene Nanocomposite Superhydrophobic Layer using The Spin Coating Method. Science and Technology Indonesia 7 (2), 158-163, 2022, R Ratnawulan, A Fauzi, S Sarimai, 2022

The effect of using discovery learning model in high school physics learning: a meta-analysis. Jurnal Pendidikan Fisika 10 (2), 93-106, 2022, DP Ramadhani, R Ratnawulan, 2022

IDENTIFICATION OF STUDENT'S MISCONCEPTIONS ON STRAIGHT MOTION MATERIALS USING FOUR-TIER DIAGNOSTIC TEST AND CERTAINTY OF RESPONSE INDEX (CRI). Pillar of Physics Education 15 (1), 21-30, 2022, IS Madina, R Ratnawulan, SY Sari, PD Sundari, T Mayasari, 2022

The Effect of Acid, Salt and Base Immersion on Hydrophobic Properties of SiMn/PS Nanocomposite. Journal of Physics: Conference Series 2309 (1), 012024, 2022, R Ratnawulan, SR Putri, D Septiana, SG Putri, A Fauzi, 2022

The Effect of SiMn/PS Composition on Hydrophobic Properties of Nanocomposite Thin Layer. Journal of Physics: Conference Series 2309 (1), 012019, 2022, SG Putri, D Septiana, SR Putri, A Fauzi, 2022

Effect of composition CaCO<sub>3</sub>/polyurethane (PU) on contact angle of the surface and compressive strength of mortar. Journal of Physics: Conference Series 2309 (1), 012009, 2022, D Wazellin, M Fachrozy, SP Jingga, 2022

Meta-analysis of the influence of 21st century high school students' skills in learning physics using a guided inquiry model. Journal of Physics: Conference Series 2309 (1), 012057, 2022, S Hidayatullah, R Wulan, 2022

The Effect of Sintering Temperature on Hydrophobic characteristic of Silica Manganese/Polystyrene (SiMn/PS) Nanocomposite. Journal of Physics: Conference Series 2309 (1), 012012, 2022, D Septiana, SR Putri, SG Putri, A Fauzi, 2022

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The Effect of Variation Calcination Temperature of Polystyrene/Tetrahydrofuran (PS/THF) Hydrophobic Layers on Contact Angle and The Compressive Strength of Cement Mortar. Journal of Physics: Conference Series 2309 (1), 012005, 2022, O Syaputri, D Septiana, M Salam, 2022

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The Effect of Calcium Carbonate ( $\text{CaCO}_3$ ) and Polystyrene (PS) Composition on Contact Angle and Compressive Strength of Hydrophobic Cement Mortar. Journal of Physics: Conference Series 2309 (1), 012003, 2022, D Septiana, O Syaputri, M Salam, 2022

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PHOTOCATALYST COATING OF  $\text{MnO-Fe}_2\text{O}_3/\text{PS}$  FROM NATURAL MATERIALS. SPECTRUM 1 (01), 30-35, 2022, SR Putri, R Wulan, E Ollia, D Zaldi, FK Kamal, 2022

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Synthesis and Characterization of Polystyrene/ $\text{CuO-Fe}_2\text{O}_3$  Nanocomposites from Natural Materials as Hydrophobic Photocatalytic Coatings. Crystals 11 (1), 31, R Ratnawulan, R Ramli, A Fauzi, S Hayati AE, 2021

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The effect of calcination temperature on the structure of iron oxide phase from west Sumatra. Journal of Physics: Conference Series 1876 (1), 012028, 2021, A Fauzi, R Ratnawulan, 2021

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Practicality of student worksheets science based on problem based learning models with the theme of the motion in life using integrated connected type 21st century learning. Journal of Physics: Conference Series 1876 (1), 012050, 2021, J Marshel, A Fauzi, 2021

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Practicality of interactive multimedia of natural science integrated with the theme of motion in life using an integrated scientific approach to 21st-century learning. Journal of Physics: Conference Series 1876 (1), 012049, 2021, A Kurniawati, A Fauzi, 2021

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Efektivitas LKPD IPA terpadu tema energi dalam kehidupan dengan PBL terintegrasi pembelajaran abad 21 untuk meningkatkan sikap peserta didik. Jurnal Penelitian Pembelajaran Fisika 7 (1), 2021, DA Gusti, R Ratnawulan, 2021

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The effect of addition sorbitol and Carboxy Methyl Cellulose (CMC) on the quality of biodegradable plastics from avocado seed starch. Pillar of Physics 13 (2), 2021, L Margaretha, 2021

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The Characteristic of Luciferase cDNA of *Lamprigera* sp. (Lampyridae: Coleoptera). Journal of Physics: Conference Series 1940 (1), 012074, 2021, Y Ahda, A Pranata, A Achyar, 2021

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THE EFFECT OF HYDROPHOBIC CALCINATION TEMPERATURE VARIATION OF SILICA/POLYSTYRENE COMPOSITE ( $\text{SiO}_2/\text{PS}$ ) ON THE DURABILITY OF SELF CLEANING MATERIALS. PILLAR OF PHYSICS 14 (1), 2021, D Juliawati, R Ratnawulan, 2021

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Analysis of contextual-based physics textbook development on static fluid materials for 21st century skills learning. Journal of Physics: Conference Series 1876 (1), 012046, 2021, Y Oktrisma, 2021

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Development of high school physics class XI book, based on concept map to enhance the high-level thinking skills (HOTS). *Journal of Physics: Conference Series* 1481 (1), 012135, 2020, G Gusnedi, R Ratnawulan, A Putra, 2020

Pengembangan Perangkat Pembelajaran Fisika SMA Berbasis Pendekatan Induktif Guided Discovery Materi Gelombang Terintegrasi Bencana Tsunami. *Natural Science: Jurnal Penelitian Bidang IPA dan Pendidikan IPA* 6 (1), 54-65, 2020, DA Naspin, P Deswita, A Fauzi, R Wulan, 2020

Optimization of hydrophobic nanocomposite thin film from silica/polietilen. *Journal of Physics: Conference Series* 1481 (1), 012011, 2020, A Fauzi, LZ Putri, 2020

Spectral properties of *Lampyrus Noctiluca* firefly from Sumatra. *Journal of Physics: Conference Series* 1481 (1), 012004, 2020, E Pertiwi, ES Arma, Y Ahda, 2020

Validity of integrated natural science teacher book with theme senses of sight and optical devices using connected model integrated 21st century learning. *Journal of Physics: Conference Series* 1481 (1), 012110, 2020, A Melati, F Weri, 2020

Validity of integrated science teacher's book with the themes of blood fluid using integrated connected type learning in the 21st century. *Journal of Physics: Conference Series* 1481 (1), 012106, 2020, R Helfira, S Syafriani, 2020

Design of integrated science student book theme adaptation of the human body to change temperature integrated 21st century learning using integrated types. *Journal of Physics: Conference Series* 1481 (1), 012091, 2020, T Supriadi, A Samra, 2020

Efektifitas Pengembangan Lembar Kerja Peserta Didik (LKPD) Fisika SMA Berbasis Model Pembelajaran Generatif. *Natural Science: Jurnal Penelitian Bidang IPA dan Pendidikan IPA* 6 (2), 126-134, 2020, RH Saputri, P Deswita, A Fauzi, R Wulan, 2020

The Development of Research-Based Learning Devices to Enhance Grade X Students' Critical Thinking Skills in Learning Physics. *International Journal of Educational Dynamics* 2 (2), 66-72, 2020, AS Misndari, R Wulan, U Usmeldi, 2020

The Effect of Volume Fraction on Acoustic Properties of Areca Nut Midrib Fibers Composites with Natural Adhesives. *Jurnal Teknik Mesin* 10 (2), 102-108, 2020, P Pratiwi, H Fahmi, A Yanto, IF Soni, 2020

Effectiveness Cream and Ointment of *Spirulina platensis* extract against amount of Fibroblas and Wound Area: Study on white rats whose skin is incised. *Indonesian Journal of Environmental Management and Sustainability* 4 (2), 39-42, 2020, B Irenesia, R Yuniarti, E Mahati, 2020

Validity of science student books with the theme of energy in life based integrated local materials using integrated models for 21st century learning. *Journal of Physics: Conference Series* 1481 (1), 012116, 2020, Z Hidayat, RS Sarmi, 2020

Efektivitas Buku Siswa IPA Terpadu dengan Tema Energi dalam Kehidupan berbasis Materi Lokal Menggunakan Model Integrated untuk Meningkatkan Kecakapan Abad 21. *JEP (Jurnal Eksakta Pendidikan)* 4 (1), 49-56, 2020, Z Hidayat, RS Sarmi, R Ratnawulan, 2020

Validation of integrated science teacher book integrated mode with scene life energy in the regional local content based sijunjung for 21st century skills. *Journal of Physics: Conference Series* 1481 (1), 012117, 2020, RS Sarmi, Z Hidayat, 2020

Validation of Integrated Science Teacher book with the theme of the Human Body System Adaptation to Temperature Changes using Integrated Type of 21st Century Learning. *Journal of Physics: Conference Series* 1481 (1), 012099, 2020, A Samra, 2020

Analysis of interactive media integrated natural science with energy themes in the life of using integrated types that integrate of learning for the 21st century. Journal of Physics: Conference Series 1481 (1), 012048, 2020, R Ariani, 2020

An analysis of development of student's worksheets with the theme integrated science energy in life by using integrated type of integrated learning in 21st century. Journal of Physics: Conference Series 1481 (1), 012045, 2020, DA Gusti, 2020

Analysis of Students Worksheet (LKPD) integrated science with the theme of the motion in life using integrated connected type 21st century learning. Journal of Physics: Conference Series 1481 (1), 012046, 2020, J Marshel, 2020

Analysis of interactive media integrated natural science by the motion themes in life using integrated connected type 21st century learning. Journal of Physics: Conference Series 1481 (1), 012051, 2020, A Kurniawati, 2020

Validity of integrated science teacher's book on junior high school based on character with the theme of cohesion and adhesion on living with shared model. Journal of Physics: Conference Series 1481 (1), 012128, 2020, TA Kendedes, 2020

Validity of student book development science integrated with blood fluid theme using integrated learning type connected integrated 21st century learning. Journal of Physics: Conference Series 1481 (1), 012111, 2020, TA Putri, R Wulan, 2020

Recent Advances in Pyrolysis. BoD–Books on Demand, 2020, HAH Ibrahim, 2020

The Effect of Heavy Metal Pollutants on Bioluminescence Intensity of Luminous Mushrooms (*Nenothopanus* sp). EKSAKTA: Berkala Ilmiah Bidang MIPA 21 (2020), 98-109, 2020, WM Ihsan, R Ratnawulan, 2020

Optimization of the Optimum Condition of Mushroom Light Excitation (*Neonothopanus* sp) Bioluminescence. EKSAKTA: Berkala Ilmiah Bidang MIPA 22 (2020), 1-9, 2020, M Qurniawati, R Ratnawulan, 2020

Pembelajaran Menulis Teks Puisi Menggunakan Metode Think Talk Write (TTW) Berbantuan Media Audio Visual pada Siswa Kelas X SMK Bina Insan Bangsa Ngamprah. Parole: Jurnal Pendidikan Bahasa dan Sastra Indonesia 3 (6), 2020, R Wulan, RT Sudrajat, D Firmansyah, 2020

Synthesis and Characterization of Polystyrene/CuO-Fe<sub>2</sub>O<sub>3</sub> Nanocomposites from Natural Materials as Hydrophobic Photocatalytic Coatings. Crystals 11 (1), 31, 2020, R Ratnawulan, R Ramli, A Fauzi, S Hayati AE, 2020

Analysis of interactive media development of VIII grade integrated science with simple machine themes on human muscular and skeleton system using connected types integrated 21<sup>st</sup> .... Journal of Physics: Conference Series, 2020, R Nurhafifah, 2020

Synthesis and Characterization Hausmannite (Mn<sub>3</sub>O<sub>4</sub>) Nanoparticle of Manganese Ores Prepared By High-Energy Milling. International Journal of Advanced Science and Technology 29 (3), 8332-8339, 2020, R Ratnawulan, P Fuji, F Ahmad, R Ramli, 2020

### Research of the Last 5 Years

Sintesis Dan Karakterisasi Nanokomposit Fotokatalis MnO<sub>2</sub>/ps/Fe<sub>2</sub>O<sub>3</sub> Untuk Pelapis Selfcleaning. Penelitian Kerjasama Pt Luar Negeri Dasar, Leader: Ratnawulan, Implementation Year: 2020



Sintesis Dan Karakterisasi Lapisan Superhidrofobik Nanokomposit Silika/polystyrene (sio2/ps) Dari Mineral Ekonomis Sumatera Barat Untuk Material Self Cleaning. Penelitian Dasar, Leader: Ahmad Fauzi, Implementation Year: 2020

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#### Community Service of the Last 5 Years

Bimbingan Teknis Pembuatan Bahan Ajar Fisika Terintegrasi Materi Bencana Gempabumi Untuk Meningkatkan Kompetensi Mitigasi Bencana Guru-guru Fisika Sma Se Kabupaten Pasaman Barat. Program Kemitraan Masyarakat (pkm), Leader: Ahmad Fauzi, Implementation Year: 2022

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Bimbingan Teknis Implementasi Pembelajaran Abad 21 Dalam Lkpd Ipa Terpadu Untuk Peningkatan Kompetensi Pedagogik Dan Profesional Guru Ipa Smp/mtsn Di Kota Batusangkar. Program Kemitraan Masyarakat (pkm), Leader: Ratnawulan, Implementation Year: 2021

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#### IPR's of the Last 5 Years

E-Modul IPA SMA Sekolah Penggerak Terintegrasi Inkuiri Terbimbing Dengan Tema Lingkungan Hidup. Inventor: Silmi Hidayatullah, M.Pd dan Prof. Dr. Ratnawulan, M.Si, Publication Date: 2023-05-18

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E-Modul Fisika SMA Kelas X Berbasis Discovery Learning Model Terintegrasi Pembelajaran Abad 21. Inventor: Dwi Putri Ramadhani, M.Pd dan Prof. Dr. Ratnawulan, M.Si, Publication Date: 2022-11-07

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Photocatalyst Coating of MnO-Fe<sub>2</sub>O<sub>3</sub>/PS from Natural Materials. Inventor: Dr. Ratnawulan, M.Si.; Suchi Ramadhani Putri; Elsa Ollia, S.Si.; Dafri Zaldi, S.Si., Publication Date: 2021-03-18

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Nanocomposite Coating Of Si / Polystyren For Water And Dust Repellent From Natural Materials. Inventor: Dila Juliawati, Dian Septiana, Dr. Ratnawulan, M.Si, Lathifa Zonesya Putri, S.Si, Publication Date: 2021-10-04

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Photocatalyst Coating Of MnO-Fe<sub>2</sub>O<sub>3</sub>/PS From Natural Materials. Inventor: Dr. Ratnawulan, M.Si., Suchi Ramadhani Putri, Publication Date: 2021-10-04

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Lembar Kerja Peserta Didik IPA Terpadu Dengan Tema Energi Dalam Kehidupan Menggunakan Problem Based Learning Terintegrasi Pembelajaran Abad 21. Inventor: Ratnawulan, Dian Arima Gusti, Publication Date: 2020-07-12

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Multimedia Interaktif IPA Terpadu Dengan Tema Gerak Dalam Kehidupan Menggunakan Pendekatan Saintifik Terintegrasi Pembelajaran Abad 21. Inventor: Ratnawulan, Anisa Kurniawati, Publication Date: 2020-07-12

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Multimedia Interaktif IPA Terpadu Berbasis Inkuiri Terbimbing Dengan Tema Energi Dalam Kehidupan Terintegrasi Pembelajaran Abad 21. Inventor: Ratnawulan, Rizka ariani, Ahmad Fauzi, Publication Date: 2020-07-12

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Multimedia Interaktif IPA Terpadu Model Inquiry Based Learning Dengan Tema Pesawat Sederhana Pada Sistem Rangka Dan Otot Manusia Terintegrasi Pembelajaran Abad 21. Inventor: Ratnawulan, Nurhafifah, Publication Date: 2020-07-12

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Lembar Kerja Peserta Didik IPA Terpadu Berbantuan Model Problem Base Learning Dengan Tema Gerak Dalam Kehidupan Menggunakan Tipe Connected Terintegrasi Pembelajaran Abad 21. Inventor: Ratnawulan, Joviana, Publication Date: 2020-07-12

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### Book of the Last 5 Years

Recent Advances in Pyrolysis. ISBN: 1789840635, Publisher: Intechopen, Year: 2020

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Synthesis and Characterization of Forsterite ( $\text{Mg}_2\text{SiO}_4$ ) Nanomaterials of Dunite from Sumatera. ISBN: 9781789840643, Publisher: Intechopen, Year: 2020

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