M. Ahsan Amjed

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ACADEMIC QUALIFICATION

2020 (Nov)-2025 (Jan)

Ph.D. in interdisciplinary fields of

Industrial Chemistry and Chemical Engineering at Politecnico di Milano, Italy,

Energy and Nuclear Science and Technology, Politecnico di Milano, Italy

Title of the Thesis: *"Solar assisted biomass pyrolysis for high efficiency biofuel pyrolysis"*

2018 (Sep)-2020 (Aug)

Research Collaboration in Department of Energy and Environmental Engineering, Ocean University of China, Qingdao (China)

Project Name: "*Solar driven biochar fabrication for water treatment*"

2015 (Sep)-2017 (Nov)

Master of Science in Energy Systems Engineering, National University of Sciences and Technology (Islamabad (Pakistan) & Arizona State University, Arizona (USA)

Title of the Thesis: *"Artificial intelligence and GIS based modeling for estimation of potential hydropower capacity on Neelam Jhelum river"*

CGPA Score: 3.80/4.00

2011 (Oct)-2015 (Aug)

Bachelor of Science in Agricultural Engineering Bahauddin Zakariya University, Multan (Pakistan)

CGPA score: 3.83/4.00

PROFESSIONAL EXPERIENCE

- **Researcher in PYSOLO project** (Pyrolysis of Biomass by Concentrated Solar Power), funded by Horizon Europe. Partners: Polimi (Italy), CSIC (Spain), DLR(Germany), REC(Italy), POLITO (Italy), INERIS (France), ABE, (Spain), NOVA (Germany), CTFC (Spain). Project Leaders: Prof. Marco Binotti, Prof. Tiziano Faravelli. **September 2023- Present**
- **Planning Engineer** (Planning, Biding and execution of energy Projects) at Allied Contractor Blue area Islamabad since September, 2017 to August 2018.
- **3-month internship** in "USPCAS-E project of biogas gasification technologies May to July 2016''
- **3-month internship** in "Renewable Energy department, NARC, Islamabad June to August 2014''.

ACADEMIC ACTIVITIES

- **Co-Supervisor of a M.Sc. students (2023-2024), Polimi, Italy.**
  Filippo Sesenna "Techno-economic assessment of a solar driven pyrolysis process using molten salts solar tower technology", Department of Energy, Politecnico di Milano, 2024.

- **Co-Supervisor of a M.Sc. students (2022-2023), Polimi, Italy.**
  Costanza Marchese "Polyethylene gasification for hydrogen, methanol, and fuels production: an integrated chemistry modelling, process simulation and environmental assessment", Department of Chemistry, materials and chemical engineering, Politecnico di Milano, 2023.

- **Teaching assistant (2023-2024), Polimi, Italy.**

  Activities related to kinetic and reactor modeling in course of "Thermochemical Processes for Carbon Neutral Energy Transformation" at Politecnico di Milano Italy. Master Degree course in Chemical Engineering, *taught by* ***Matteo Pelucchi***

- **2019 (Mar)-2020 (Jan): Teacher at WEB international Qingdao, China**

  Teaching of different Advance scientific and school level English taught classes of all age groups.

VISITING POSITION

2017 (Jan)-2017 (May)
Visiting researcher at school of sustainability, Arizona state university, Arizona, USA.

PUBLICATIONS

- **Muhammad Ahsan Amjed**, Filip Sobic, Matteo C. Romano, Tiziano Faravelli, and Marco Binotti. "Techno-economic analysis of a solar-driven biomass pyrolysis plant for bio-oil and biochar production." *Sustainable Energy & Fuels*, **8**, 4243-4262, 2024.
- **Muhammad Ahsan Amjed**, Marco Colombi, Juan Pablo Rincon Duarte, Clarisse Lorreyte, Gkiokchan Moumin, Matteo Carmelo Romano, Marco Binotti, "Solar-driven Biomass Pyrolysis Plant for Negative-Emission Biofuels Production" SolarPACES 2024, 30th International Conference on Concentrating Solar Power and Chemical Energy Systems Solar Fuels and Chemical Commodities.
- Berkel, Leon Loni, Paulo Debiagi, Hendrik Nicolai, **Muhammad Ahsan Amjed**, Alessandro Stagni, Christian Hasse, and Tiziano Faravelli. "Development of a multiphase chemical reactor network method as a tool for simulating biomass gasification in fluidized beds." *Fuel* 357 (2024): 129731.
- Zou, Xun, Paulo Debiagi, **Muhammad Ahsan Amjed**, Ming Zhai, and Tiziano Faravelli. "Impact of high-temperature biomass pyrolysis on biochar formation and composition." *Journal of Analytical and Applied Pyrolysis* 179 (2024): 106463.
- Zou, Xun, Li Guo, Guannan Liu, **Muhammad Ahsan Amjed**, Tongyao Wang, Haoxuan Qi, Yu Zhang, and Ming Zhai. "Advanced design, parameter optimization, and thermodynamic analysis of integrated air-blown IGCC power plants." *Fuel* 357 (2024): 130016.
- Mekonnen Mossissa, Henok, Million M Afessa, Derese T Nega, **Muhammad Ahsan Amjed**, and A. Venkata Ramayya. "Opportunities and Challenges of Harnessing Biomass Wastes for Decentralized Heat and Energy Generation and Climate Mitigation via Fluidized-bed Gasification Pathway." From Biomass to Biobased Products (2024): 2-31.
- Javaid, Sheikh Fahad, Min Dai, Yanni Wu, Huihong Luo, **Muhammad Ahsan Amjed**, Imran Ali, Changsheng Peng, and Iffat Naz. "Production of Biochar by Slow and Solar-Biomass Pyrolysis: Focus on the Output Configuration Assessment, Adaptability, and Barriers to Market Penetration." *Arabian Journal for Science and Engineering* 49, no. 6 (2024): 7731-7750.
- Hayyat, Umer, Muhammad Usman Khan, Muhammad Farooq, Muhammad Sultan, **Muhammad Ahsan Amjed**, Guangqing Liu, Xue Chunyu, Fahid Riaz, and Mohammad Alkhedher. "Recent developments and challenges in biomass cookstove." *Energy Reports* 12 (2024): 2193-2208.
- **Muhammad Ahsan Amjed**, Xiange Wu, Imran Ali, Iffat Naz, Min Dai, Aafia Tehrim, Waqas Niaz, Sheikh Fahad Javaid, and Changsheng Peng. "Surface decoration and characterization of solar driven biochar for the removal of toxic aromatic pollutant." *Journal of Chemical Technology & Biotechnology* 96, no. 8 (2021): 2310-2324.
- Tehrim, Aafia, Min Dai, Xiange Wu, Malik Muhammad Umair, Imran Ali, **Muhammad Ahsan Amjed**, Rong Rong, Sheikh Fahad Javaid, and Changsheng Peng. "Citric acid modified waste cigarette filters for

adsorptive removal of methylene blue dye from aqueous solution." Journal of Applied Polymer Science 138, no. 27 (2021): 50655.