جامعة الملك فهد للبترول والمعادن
King Fahd University of Petroleum & Minerals

Center	**Interdisciplinary Center for Refining and Advanced Chemicals**
Job Title	**Post-Doctoral Fellow**
Computational Fluid Dynamics (CFD) Modeling of Chemical Processes	We are seeking experienced Postdoctoral Researcher to work on developing state-of-the-art computational fluid dynamics (CFD) models to simulate and analyze complex fluid-particle systems. This role includes integrating CFD-DEM (Discrete Element Method) simulations and utilizing machine learning algorithms to enhance predictive accuracy, and Knowledge of reaction kinetics, process intensification, or advanced reactor designs (e.g., microreactors, fluidized beds) This role offers an exciting opportunity to work at the forefront of advanced modelling and simulation of chemical processes, contribution to innovations in process optimization, reactor design and sustainable engineering solutions. After joining the research team, the Researchers is expected to conduct detailed simulations for a variety of applications, innovate in computational methodologies, and share their discoveries through publications in esteemed journals. The initial duration of the contract will be 2 years extendable based on performance and project duration.
Job Responsibility	• Develop and implement CFD models for multiphase, reactive, and /or turbulent flows in chemical reactors • Perform numerical simulations to optimize reactor performance and energy efficiency • Collaborate in multidisciplinary teams, including experimentalists, to validate and refine models • Write and contribute to publication in high-impact journals, present findings in international conferences, and assist with research proposal writing when required
Qualification	• PhD in Chemical Engineering, Mechanical Engineering, or related fields. • Strong background in numerical methods, fluid mechanics, and transport phenomena • Proficiency in CFD software (e.g., ANSYS Fluent, COMSOL Multiphysics or equivalent software) and machine learning frameworks. • Experience in multi-phase flow simulations, familiarity with High-Performance Computing (HPC) environments, experience with ML learning or optimization techniques • Only candidates who satisfy the below criteria will be considered for the position: - Recent graduate (2021 or later) - Ph.D. granting university ranked in the top 200 universities as per QS Ranking - High GPA (preferably > 3.5/4) with NO low grades (D or F) in BS, Master or Ph.D. - Strong publication record in peer-reviewed journals (h index > 5).

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Job Title	**Post-Doctoral Fellow**
Density Functional Theory (DFT) Modeling	We are hiring highly qualified postdoctoral fellows with strong expertise in DFT simulation, particularly on performing theoretical and computational studies to explore and predict material properties using density functional theory (DFT). This includes employing machine learning techniques to analyze data and model material behavior under various conditions. Researchers will contribute to the design of advanced materials for specific applications by conducting rigorous computational studies, developing predictive models, and publishing impactful results in the scientific community. Candidates should possess a strong academic background. The initial duration of the contract will be 2 years extendable based on performance and project duration.
Job Responsibility	• Conduct theoretical and computational DFT studies on material design with licensed software. • Develop DFT models to predict material behavior under various conditions. • Collaborate in multidisciplinary teams, including experimentalists, to validate and refine models • Write and contribute to publication in high-impact journals, present findings in international conferences, and assist with research proposal writing when required
Qualification	• PhD in Materials Science, Physics, Chemistry or related fields • Expertise in DFT simulations on packages like Gaussian, VASP, Material Studio, and familiarity with machine learning. • Strong programming and data analysis skills. • Only candidates who satisfy the below criteria will be considered for the position: - Recent graduate (2021 or later) - Ph.D. granting university ranked in the top 200 universities as per QS Ranking - High GPA (preferably > 3.5/4) with NO low grades (D or F) in BS, Master or Ph.D. - Strong publication record in peer-reviewed journals (h index > 5).

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Center	**Interdisciplinary Center for Refining and Advanced Chemicals**
Job Title	**Post-Doctoral Fellow**
Safety in Chemical Processes	We are looking for well experienced Postdoctoral candidates with strong research expertise in safety to conduct pioneering research on process design and inherently safer systems. The role involves hazard assessments, data analysis, and the use of CFD simulations to mitigate industrial risks. Candidates should possess a strong academic background, technical expertise in process safety and risk analysis, and a passion for safety research. The initial duration of the contract will be 2 years extendable based on performance and project duration.
Job Responsibility	• Perform hazard assessments and safety analyses. • Develop frameworks for safer chemical and industrial processes. • Collaborate in multidisciplinary teams, including industrial experts, to validate and refine models • Write and contribute to publication in high-impact journals, present findings in international conferences, and assist with research proposal writing when required
Qualification	• PhD in Chemical Engineering or related fields. • Expertise in process safety, CFD, and data analysis. • Strong understanding of safety regulations and risk assessment methodologies. • Only candidates who satisfy the below criteria will be considered for the position: - Recent graduate (2021 or later) - Ph.D. granting university ranked in the top 200 universities as per QS Ranking - High GPA (preferably > 3.5/4) with NO low grades (D or F) in BS, Master or Ph.D. - Strong publication record in peer-reviewed journals (h index > 5).

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Center	**Interdisciplinary Center for Refining and Advanced Chemicals**
Job Title	**Post-Doctoral Fellow**
Computational Mathematics	We are recruiting highly qualified and motivated Postdoctoral Researchers with expertise in mathematics, particularly in computational fluid dynamics, numerical simulations, and Physics-Informed Neural Networks (PINNs). Researchers will tackle complex mathematical challenges, solve partial differential equations, and explore applications in bio-mathematics and quantum computing. Candidates should possess a strong academic background, technical expertise in applied mathematics and computational modeling, and a passion for research in these fields. The initial duration of the contract will be 2 years extendable based on performance and project duration.
Job Responsibility	• Conduct computational and numerical studies in areas like multiphase flows, phase transition and interfacial dynamics` • Developing and implementing novel computational models and algorithms with computer programming, pre-and post-processing skills. • Collaborate in multidisciplinary teams to provide innovative insights and solutions to interdisciplinary research problems related to computational chemistry and material science • Write and contribute to publication in high-impact journals, present findings in international conferences, and assist with research proposal writing when required
Qualification	• PhD in Mathematics, Applied Mathematics, or related fields. • Expertise in computational fluid dynamics, numerical methods, and machine learning. • Proficiency in MATLAB or other related licensed software • Only candidates who satisfy the below criteria will be considered for the position: - Recent graduate (2021 or later) - Ph.D. granting university ranked in the top 200 universities as per QS Ranking - High GPA (preferably > 3.5/4) with NO low grades (D or F) in BS, Master or Ph.D. - Strong publication record in peer-reviewed journals (h index > 5).

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Center	**Interdisciplinary Center for Refining and Advanced Chemicals**
Job Title	**Post-Doctoral Fellow**
Biomass and Plastics Conversion	We are seeking outstanding Postdoctoral Researchers specializing in biomass and plastics conversion to fuels and chemicals. For biomass conversion, experiences in Biomass Conversion, Biofuels (Biodiesel, Green diesel, Bio-Jet fuel), Hydrodeoxygenation and Deoxygenation is a plus. Candidates should have expertise in thermochemical and biochemical conversion processes, reactor design, process optimization, and computational modeling tools like Aspen Plus, life cycle assessment (LCA), and techno-economic analysis (TEA). Proficiency in analytical techniques such as gas chromatography (GC), pyrolysis GC mass spectrometry, and spectroscopy for product characterization is essential. Ideal candidates will demonstrate innovation in developing novel methods to improve efficiency and yield, possess strong interdisciplinary collaboration and communication skills, and have a proven track record of publishing high-quality research. Candidates should possess a strong academic background. The initial duration of the contract will be 2 years extendable based on performance and project duration.
Job Responsibility	• Designing and conducting experimental studies to optimize thermochemical, aquathermolysis and biochemical conversion processes. • Performing detailed product characterization using analytical techniques such as gas chromatography (GC) and pyrolysis GC mass spectrometry • Write and contribute to publication in high-impact journals, present findings in international conferences, and assist with research proposal writing when required
Qualification	• PhD in Chemical Engineering, Environmental Science, or a related field. • Proficiency in thermochemical and biochemical conversion processes, reactor design, and process optimization. • Experience with techniques such as gas chromatography (GC), pyrolysis GC mass spectrometry, and spectroscopy for product characterization. • Familiarity with process modeling tools like Aspen Plus, and knowledge of life cycle assessment (LCA) and techno-economic analysis (TEA) • Only candidates who satisfy the below criteria will be considered for the position: - Recent graduate (2021 or later) - Ph.D. granting university ranked in the top 200 universities as per QS Ranking - High GPA (preferably > 3.5/4) with NO low grades (D or F) in BS, Master or Ph.D. - Strong publication record in peer-reviewed journals (h index > 5).

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Center	**Interdisciplinary Center for Refining and Advanced Chemicals**
Job Title	**Post-Doctoral Fellow**
Polymer Science	We are recruiting highly qualified and motivated Postdoctoral Candidates with expertise in polymer science to design and synthesize innovative polymers for diverse industrial applications. Prospective Researchers will focus on exploring the relationship between polymer structure and functionality and applying findings across various industries. Candidates should possess a strong academic background, technical expertise in polymer synthesis and characterization, crystal growth and supramolecular Chemistry, polymer blends, rubber nanocomposites, bio-nanocomposites, polymer recycling, and a passion for research in their respective fields. The initial duration of the contract will be 2 years extendable based on performance and project duration.
Job Responsibility	• Design and synthesize polymers for tailored industrial applications. • Investigate the relationship between polymer structure and functionality. • Write and contribute to publication in high-impact journals, present findings in international conferences, and assist with research proposal writing when required
Qualification	• PhD in Polymer Science, Chemistry, or related disciplines. • Experience in polymer synthesis, characterization, and application. • Knowledge of advanced analytical techniques. • Expertise on DFT modeling is an added advantage • Only candidates who satisfy the below criteria will be considered for the position: - Recent graduate (2021 or later) - Ph.D. granting university ranked in the top 200 universities as per QS Ranking - High GPA (preferably > 3.5/4) with NO low grades (D or F) in BS, Master or Ph.D. - Strong publication record in peer-reviewed journals (h index > 5).

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Center	**Interdisciplinary Center for Refining and Advanced Chemicals**
Job Title	**Post-Doctoral Fellow**
Catalysis and Catalytic Processes	We are seeking for exceptional Postdoctoral Fellows to join our dynamic team and tackle some of the most pressing challenges in sustainable chemistry and energy conversion via thermochemical, photochemical, and electrochemical routes. Potential research themes to be investigated include but not limited to CO_2 conversion, methane pyrolysis, reverse water-gas shift (RWGS), efficient PET depolymerization, homogeneous catalysis in aquathermolysis for heavy oil upgrading, and crude to chemical conversions (C2C). Candidates with either heterogenous or homogeneous catalysis backgrounds are invited to apply. Successful Candidate will have access to state-of-the-art facilities and collaborate with leading experts in the field on designing, developing, and optimizing catalytic processes while advancing our understanding of reaction mechanisms and developing robust kinetic models. Experience in in-situ or DRIFT spectroscopy experiments to unravel surface dynamics and evolution of reactive intermediates is an added advantage. Candidates should possess a strong academic background, technical expertise in catalysis and spectroscopy. The initial duration of the contract will be 2 years extendable based on performance and project duration.
Job Responsibility	• Design catalysts and execute experiments on advanced catalytic processes for fuels and chemicals production. • Collaborate with interdisciplinary teams to investigate and promote diverse research themes on catalysis and other related topics. • Write and contribute to publication in high-impact journals, present findings in international conferences, and assist with research proposal writing when required
Qualification	• PhD in Chemistry, Chemical Engineering, or related fields. • Expertise in catalysis, spectroscopy techniques, and reaction mechanisms. • Strong analytical and problem-solving skills. • Kinetics and DFT modeling expertise and experience in *in-situ* or DRIFTS experiments are desirable • Only candidates who satisfy the below criteria will be considered for the position: - Recent graduate (2021 or later) - Ph.D. granting university ranked in the top 200 universities as per QS Ranking - High GPA (preferably > 3.5/4) with NO low grades (D or F) in BS, Master or Ph.D. - Strong publication record in peer-reviewed journals (h index > 5).

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Center	**Interdisciplinary Center for Refining and Advanced Chemicals**
Job Title	**Post-Doctoral Fellow**
Rheology, Polymer Physics, and Polymer Processing	We are seeking for outstanding Postdoctoral Fellows with strong background and experience in **rheology** and **polymer physics** in general as well as **polymer processing**. Candidates should possess a strong academic background and technical expertise in understanding structure-property relationships in polymers and polymer blends, developing 3D-printing emulsion inks, understanding the behavior of mechanically interlocking particle suspensions, establishing a foundation for the understanding behavior of vitrimers, and investigations on the structure-property relationships in immiscible and partially immiscible polymer blends. The initial duration of the contract will be 2 years extendable based on performance and project duration.
Job Responsibility	• Design and conduct experiments on structure-property relationships in polymers and polymer blends, understanding behavior of mechanically interlocking particle suspensions and behavior of vitrimers, immiscible and partially immiscible polymer blends • Collaborate with interdisciplinary teams, including industry experts on potential projects • Write and contribute to publication in high-impact journals, present findings in international conferences, and assist with research proposal writing when required
Qualification	• PhD in Chemical Engineering, Chemistry, material science or relevant fields. • Expertise in rheology and polymer physics in general as well as polymer processing. • Expertise on developing 3D-printing emulsion inks is an advantage • Only candidates who satisfy the below criteria will be considered for the position: - Recent graduate (2021 or later) - Ph.D. granting university ranked in the top 200 universities as per QS Ranking - High GPA (preferably > 3.5/4) with NO low grades (D or F) in BS, Master or Ph.D. - Strong publication record in peer-reviewed journals (h index > 5).

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Center	**Interdisciplinary Center for Refining and Advanced Chemicals**
Job Title	**Post-Doctoral Fellow**
Separation Purification (Design & Development of Adsorbent Materials)	We are hiring for experienced Postdoctoral Fellows with strong academic background and technical expertise in designing and engineering adsorbents (such as zeolite, graphene, SAPO, activated carbon, MOFs, etc.) with unique features. Working experience with gas separation & purification technique will be given special consideration such as operating fixed adsorption column flow system to determine breakthrough point and separation efficiency of mixture of gases and experience of handling gas chromatography (GC). The candidate is expected to have a good grip on analytical techniques required for making extrudates/beads and characterization of adsorbents as well as performance evaluation of adsorbent materials to understand and establish robust structure-property relationships for tailored applications. The initial duration of the contract will be 2 years extendable based on performance and project duration.
Job Responsibility	• Design and develop functional adsorbent materials for gas separation & purification • Strong technical expertise relevant characterization techniques for establishing robust structure-property relationships • Collaborate with interdisciplinary and dynamic teams on cutting-edge research projects to address grand challenges in gas separation & purification • Write and contribute to publication in high-impact journals, present findings in international conferences, and assist with research proposal writing when required
Qualification	• PhD in Chemical Engineering, Chemistry, material science or related discipline. • Expertise in design and development of tailored adsorbent materials and establishing robust structure-property relationships • Only candidates who satisfy the below criteria will be considered for the position: - Recent graduate (2021 or later) - Ph.D. granting university ranked in the top 200 universities as per QS Ranking - High GPA (preferably > 3.5/4) with NO low grades (D or F) in BS, Master or Ph.D. - Strong publication record in peer-reviewed journals (h index > 5).

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Center	**Interdisciplinary Center for Refining and Advanced Chemicals**
Job Title	**Post-Doctoral Fellow**
Optimization of Refinery and Chemical Processes	We are recruiting talented for Postdoctoral Fellows with strong technical expertise in Optimization of Refinery and Chemical Processes. Candidates are expected to have a solid foundation in chemical engineering, with specialized knowledge in process systems engineering. Proficiency in mathematical modeling techniques (linear, nonlinear, integer, and multi-objective programming) is essential, along with a familiarity with optimization algorithms and software tools such as MATLAB, GAMS, Aspen Plus, or Hysys. Moreover, candidate should demonstrate analytical skills to interpret model results and propose practical improvements. The initial duration of the contract will be 2 years extendable based on performance and project duration.
Job Responsibility	• Perform multi-objective programming to balance competing goals and be adept at developing mathematical representations of chemical processes and refining systems. • Simulating process behavior under different conditions using advanced software tools to predict outcomes, analyze outcomes, and refine designs. • Collaborate with interdisciplinary and dynamic teams on cutting-edge research projects to address grand challenges in gas separation & purification • Write and contribute to publication in high-impact journals, present findings in international conferences, and assist with research proposal writing when required
Qualification	• PhD in Chemical Engineering, Computational mathematics, Systems and Control or related discipline. • Have hands-on experience with optimization software such as MATLAB, GAMS, Aspen Plus, or Hysys to simulate and novel problems. • Only candidates who satisfy the below criteria will be considered for the position: - Recent graduate (2021 or later) - Ph.D. granting university ranked in the top 200 universities as per QS Ranking - High GPA (preferably > 3.5/4) with NO low grades (D or F) in BS, Master or Ph.D. - Strong publication record in peer-reviewed journals (h index > 5).

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Center	**Interdisciplinary Center for Refining and Advanced Chemicals**
Job Title	**Post-Doctoral Fellow**
Gas Hydrates for Separation and Hydrate Inhibition	We are seeking for highly motivated Postdoctoral Fellows with strong technical expertise in the area of gas hydrates for separation and hydrate inhibition. The ideal candidate must have fundamental background of gas hydrates and its related applications. The candidate is expected to have a good theoretical background on the mechanism controlling rapid kinetics of hydrate formation and understanding of the nucleation theory. Strong experience in the analysis of gas hydrates using Raman spectroscopy, neutron scattering and X-ray diffraction is important. The applicant should be familiar with working with both Gas Hydrate Autoclaves or Rocking Cell. Moreover, candidate should demonstrate analytical skills to interpret results of experiments and propose practical improvements. The initial duration of the contract will be 2 years extendable based on performance and project duration.
Job Responsibility	• Design and perform innovative experiments for gas hydrates separation and hydrate inhibition • Analyze gas hydrates using relevant characterization techniques such as Raman spectroscopy, neutron scattering and X-ray diffraction • Collaborate with interdisciplinary and dynamic teams on cutting-edge research projects to address grand challenges in gas hydrates separation and hydrate inhibition • Write and contribute to publication in high-impact journals, present findings in international conferences, and assist with research proposal writing when required
Qualification	• PhD in Chemical Engineering, Chemistry or related discipline. • Fundamental background in gas hydrates and its related applications, and probing mechanism controlling rapid kinetics of hydrate formation and understanding of the nucleation theory. • Only candidates who satisfy the below criteria will be considered for the position: - Recent graduate (2021 or later) - Ph.D. granting university ranked in the top 200 universities as per QS Ranking - High GPA (preferably > 3.5/4) with NO low grades (D or F) in BS, Master or Ph.D. - Strong publication record in peer-reviewed journals (h index > 5).

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Center	**Interdisciplinary Center for Refining and Advanced Chemicals**
Job Title	**Post-Doctoral Fellow**
Biocatalytic transformations	We are looking for highly motivated Postdoctoral Fellows with strong technical expertise in the area of Biocatalytic transformations. Biocatalysis is the use of enzymes to replace traditional catalysts to carry out chemical transformations. This sustainable approach has gained significant interest in the industrial sector. Prospective candidates are expected to work with a dynamic and interdisciplinary team that uses enzymes to carry out organic transformations (i.e., biocatalysis). More specifically, the research work includes conducting enzyme-catalyzed organic transformations and characterization of reaction products using relevant spectroscopic tools. The team is also involved in enzyme encapsulation to enable the utilization of more than one enzyme in one pot such as deracemization reactions of alcohols including dynamic kinetic resolution, stereoinversion, and cyclic deracemization. Additional areas of expertise, which is considered a plus for the applicant, includes enzyme kinetics, molecular docking of substrates in the active sites of enzymes. Moreover, candidate should demonstrate analytical skills to interpret results of experiments and propose practical improvements. The initial duration of the contract will be 2 years extendable based on performance and project duration.
Job Responsibility	• Perform well-designed experiments for biocatalytic transformations to target products • Utilize relevant spectroscopic tools to characterize the reaction products and establish strong property-activity relationships • Collaborate with interdisciplinary and dynamic teams on innovative and cutting-edge biocatalytic transformations projects • Write and contribute to publication in high-impact journals, present findings in international conferences, and assist with research proposal writing when required
Qualification	• PhD in Biochemical Engineering, Chemistry or related discipline. • Fundamental background in biocatalytic reactions and hands-on experience on relevant characterization techniques • Only candidates who satisfy the below criteria will be considered for the position: - Recent graduate (2021 or later) - Ph.D. granting university ranked in the top 200 universities as per QS Ranking - High GPA (preferably > 3.5/4) with NO low grades (D or F) in BS, Master or Ph.D. - Strong publication record in peer-reviewed journals (h index > 5).