# Masa Prodanovic

## List of Publications by Year
in descending order

| 117 papers | 3,307 citations | 159585<br>30 h-index | 161849<br>54 g-index |
|---|---|---|---|
| 119 all docs | 119 docs citations | 119 times ranked | 2631 citing authors |

| # | Article | IF | Citations |
|---|---------|-----|-----------|
| 1 | Multiscale, Multiphysics Network Modeling of Shale Matrix Gas Flows. Transport in Porous Media, 2013, 99, 377-390. | 2.6 | 206 |
| 2 | A level set method for determining critical curvatures for drainage and imbibition. Journal of Colloid and Interface Science, 2006, 304, 442-458. | 9.4 | 183 |
| 3 | Comprehensive comparison of pore-scale models for multiphase flow in porous media. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 13799-13806. | 7.1 | 162 |
| 4 | 3D image-based characterization of fluid displacement in a Berea core. Advances in Water Resources, 2007, 30, 214-226. | 3.8 | 149 |
| 5 | The effect of microporosity on transport properties in porous media. Advances in Water Resources, 2014, 63, 104-119. | 3.8 | 133 |
| 6 | PoreFlow-Net: A 3D convolutional neural network to predict fluid flow through porous media. Advances in Water Resources, 2020, 138, 103539. | 3.8 | 125 |
| 7 | Porous structure and fluid partitioning in polyethylene cores from 3D X-ray microtomographic imaging. Journal of Colloid and Interface Science, 2006, 298, 282-297. | 9.4 | 124 |
| 8 | Viscosity and stability of ultra-high internal phase $CO_2$-in-water foams stabilized with surfactants and nanoparticles with or without polyelectrolytes. Journal of Colloid and Interface Science, 2016, 461, 383-395. | 9.4 | 123 |
| 9 | Poreâ€Scale Determination of Gas Relative Permeability in Hydrateâ€Bearing Sediments Using Xâ€Ray Computed Microâ€Tomography and Lattice Boltzmann Method. Water Resources Research, 2018, 54, 600-608. | 4.2 | 114 |
| 10 | A level set method for simulating capillaryâ€controlled displacements at the pore scale with nonzero contact angles. Water Resources Research, 2013, 49, 4645-4661. | 4.2 | 94 |
| 11 | Direct simulation of supercritical gas flow in complex nanoporous media and prediction of apparent permeability. International Journal of Coal Geology, 2016, 159, 120-134. | 5.0 | 84 |
| 12 | High temperature ultralow water content carbon dioxide-in-water foam stabilized with viscoelastic zwitterionic surfactants. Journal of Colloid and Interface Science, 2017, 488, 79-91. | 9.4 | 77 |
| 13 | Theoretical and experimental investigation of the motion of multiphase fluids containing paramagnetic nanoparticles in porous media. Journal of Petroleum Science and Engineering, 2012, 81, 129-144. | 4.2 | 72 |
| 14 | Ultradry Carbon Dioxide-in-Water Foams with Viscoelastic Aqueous Phases. Langmuir, 2016, 32, 28-37. | 3.5 | 71 |
| 15 | Stable Citrate-Coated Iron Oxide Superparamagnetic Nanoclusters at High Salinity. Industrial &amp; Engineering Chemistry Research, 2010, 49, 12435-12443. | 3.7 | 63 |
| 16 | Interaction between cemented natural fractures and hydraulic fractures assessed by experiments and numerical simulations. Journal of Petroleum Science and Engineering, 2018, 167, 506-516. | 4.2 | 60 |
| 17 | Imaged-based multiscale network modelling of microporosity in carbonates. Geological Society Special Publication, 2015, 406, 95-113. | 1.3 | 54 |
| 18 | New Classification of Carbonate Rocks for Process-Based Pore-Scale Modeling. SPE Journal, 2013, 18, 243-263. | 3.1 | 48 |

| # | Article | IF | Citations |
|---|---------|-----|-----------|
| 19 | Deformation-assisted fluid percolation in rock salt. Science, 2015, 350, 1069-1072. | 12.6 | 48 |
| 20 | The application of sorption hysteresis in nano-petrophysics using multiscale multiphysics network models. International Journal of Coal Geology, 2014, 128-129, 96-108. | 5.0 | 47 |
| 21 | X-Ray Computed Microtomography Studies of Fluid Partitioning in Drainage and Imbibition Before and After Gel Placement: Disproportionate Permeability Reduction. SPE Journal, 2006, 11, 159-170. | 3.1 | 45 |
| 22 | Prediction of empirical properties using direct pore-scale simulation of straining through 3D microtomography images of porous media. Journal of Hydrology, 2015, 529, 768-778. | 5.4 | 45 |
| 23 | Computationally Efficient Multiscale Neural Networks Applied to Fluid Flow in Complex 3D Porous Media. Transport in Porous Media, 2021, 140, 241-272. | 2.6 | 45 |
| 24 | Engineered Nanoparticles as Harsh-Condition Emulsion and Foam Stabilizers and as Novel Sensors. , 2011, , . | | 44 |
| 25 | Numerical Algorithms for Network Modeling of Yield Stress and other Non-Newtonian Fluids in Porous Media. Transport in Porous Media, 2012, 93, 363-379. | 2.6 | 41 |
| 26 | Investigating Matrix/Fracture Transfer via a Level Set Method for Drainage and Imbibition. SPE Journal, 2010, 15, 125-136. | 3.1 | 38 |
| 27 | Effects of Magnetic Field on the Motion of Multiphase Fluids Containing Paramagnetic Particles in Porous Media. , 2010, , . | | 36 |
| 28 | Coupled solid and fluid mechanics modeling of formation damage near wellbore. Journal of Petroleum Science and Engineering, 2013, 112, 88-96. | 4.2 | 35 |
| 29 | Pore-scale modeling of carbonates. Marine and Petroleum Geology, 2020, 114, 104141. | 3.3 | 35 |
| 30 | Percolative core formation in planetesimals enabled by hysteresis in metal connectivity. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 13406-13411. | 7.1 | 34 |
| 31 | Effect of pore geometry on nitrogen sorption isotherms interpretation: A pore network modeling study. Fuel, 2018, 225, 243-255. | 6.4 | 34 |
| 32 | A Multiscale Method Coupling Network and Continuum Models in Porous Media I: Steady-State Single Phase Flow. Multiscale Modeling and Simulation, 2012, 10, 515-549. | 1.6 | 32 |
| 33 | Modeling fracture propagation and cleanup for dry nanoparticle-stabilized-foam fracturing fluids. Journal of Petroleum Science and Engineering, 2016, 146, 210-221. | 4.2 | 32 |
| 34 | The effects of pore geometry on adsorption equilibrium in shale formations and coal-beds: Lattice density functional theory study. Fuel, 2016, 163, 205-213. | 6.4 | 30 |
| 35 | 3D Microscale Flow Simulation of Shear-Thinning Fluids in a Rough Fracture. Transport in Porous Media, 2019, 128, 243-269. | 2.6 | 30 |
| 36 | Nanoscale confined multicomponent hydrocarbon thermodynamic phase behavior and multiphase transport ability in nanoporous material. Chemical Engineering Journal, 2020, 382, 122974. | 12.7 | 29 |

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|---|---------|-----|-----------|
| 37 | Numerical Simulation of Diagenetic Alteration and Its Effect on Residual Gas in Tight Gas Sandstones. Transport in Porous Media, 2013, 96, 39-62. | 2.6 | 28 |
| 38 | Study of formation damage caused by retention of bi-dispersed particles using combined pore-scale simulations and particle flooding experiments. Journal of Petroleum Science and Engineering, 2017, 158, 293-308. | 4.2 | 28 |
| 39 | Methane dual-site adsorption in organic-rich shale-gas and coalbed systems. International Journal of Coal Geology, 2015, 149, 1-8. | 5.0 | 27 |
| 40 | Study of subcritical and supercritical gas adsorption behavior in different nanopore systems in shale using lattice Boltzmann method. International Journal of Coal Geology, 2019, 212, 103263. | 5.0 | 24 |
| 41 | Modeling Nanoconfinement Effects Using Active Learning. Journal of Physical Chemistry C, 2020, 124, 22200-22211. | 3.1 | 24 |
| 42 | Correlating Gas Transport Parameters and X-Ray Computed Tomography Measurements in Porous Media. Soil Science, 2013, 178, 60-68. | 0.9 | 23 |
| 43 | Nanoscale grain boundary channels in fracture cement enhance flow in mudrocks. Journal of Geophysical Research: Solid Earth, 2016, 121, 3366-3376. | 3.4 | 23 |
| 44 | A forward analysis on the applicability of tracer breakthrough profiles in revealing the pore structure of tight gas sandstone and carbonate rocks. Water Resources Research, 2015, 51, 4751-4767. | 4.2 | 22 |
| 45 | Characterization of methane hydrate host sediments using synchrotron-computed microtomography (CMT). Journal of Petroleum Science and Engineering, 2007, 56, 136-145. | 4.2 | 20 |
| 46 | Investigating flow properties of partially cemented fractures in Travis Peak Formation using image-based pore-scale modeling. Journal of Geophysical Research: Solid Earth, 2015, 120, 5453-5466. | 3.4 | 20 |
| 47 | A method for estimating microporosity of fine-grained sediments and sedimentary rocks via scanning electron microscope image analysis. Sedimentology, 2016, 63, 1507-1521. | 3.1 | 18 |
| 48 | Monte Carlo Approach for Estimating Density and Atomic Number From Dual-Energy Computed Tomography Images of Carbonate Rocks. Journal of Geophysical Research: Solid Earth, 2017, 122, 9804-9824. | 3.4 | 18 |
| 49 | Effect of wettability on two-phase quasi-static displacement: Validation of two pore scale modeling approaches. Journal of Contaminant Hydrology, 2018, 212, 115-133. | 3.3 | 18 |
| 50 | MudrockNet: Semantic segmentation of mudrock SEM images through deep learning. Computers and Geosciences, 2022, 158, 104952. | 4.2 | 18 |
| 51 | Percolation and Grain Boundary Wetting in Anisotropic Texturally Equilibrated Pore Networks. Physical Review Letters, 2014, 113, 048001. | 7.8 | 17 |
| 52 | A Local-Effective-Viscosity Multirelaxation-Time Lattice Boltzmann Pore-Network Coupling Model for Gas Transport in Complex Nanoporous Media. SPE Journal, 2021, 26, 461-481. | 3.1 | 17 |
| 53 | Physics-Driven Interface Modeling for Drainage and Imbibition in Fractures. SPE Journal, 2009, 14, 532-542. | 3.1 | 16 |
| 54 | Natural and Hydraulic Fracture Interaction Study Based on Semi-Circular Bending Experiments. , 2013, , . | | 16 |

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|---|---------|-----|-----------|
| 55 | Pore–Scale Study of Water Adsorption and Subsequent Methane Transport in Clay in the Presence of Wettability Heterogeneity. Water Resources Research, 2020, 56, e2020WR027568. | 4.2 | 14 |
| 56 | Predicting flow properties in diagenetically-altered media with multi-scale process-based modeling: A Wilcox Formation case study. Marine and Petroleum Geology, 2019, 100, 179-194. | 3.3 | 13 |
| 57 | A Multiscale Method Coupling Network and Continuum Models in Porous Media II—Single- and Two-Phase Flows. Fields Institute Communications, 2013, , 161-185. | 1.3 | 13 |
| 58 | Identifying the dominant transport mechanism in single nanoscale pores and 3D nanoporous media. Fundamental Research, 2023, 3, 409-421. | 3.3 | 13 |
| 59 | Matrix-Fracture Connectivity in Eagle Ford Shale. , 2014, , . | | 11 |
| 60 | Pore scale study of gas sorption hysteresis in shale nanopores using lattice Boltzmann method. International Journal of Coal Geology, 2020, 229, 103568. | 5.0 | 11 |
| 61 | X-Ray Computed Microtomography Studies of Disproportionate Permeability Reduction. , 2004, , . | | 10 |
| 62 | Theoretical and Experimental Investigation of the Motion of Multiphase Fluids Containing Paramagnetic Nanoparticles in Porous Media. , 2010, , . | | 9 |
| 63 | The Effect of Vuggy Porosity on Straining in Porous Media. SPE Journal, 2019, 24, 1164-1178. | 3.1 | 9 |
| 64 | Quasi-static analysis of a ferrofluid blob in a capillary tube. Journal of Applied Physics, 2012, 111, 074901. | 2.5 | 8 |
| 65 | Understanding Tortuosity and Permeability variations in Naturally Fractured Reservoirs: Niobrara Formation. , 2014, , . | | 8 |
| 66 | Pore-Scale Level Set Simulations of Capillary-Controlled Displacement with Adaptive Mesh Refinement. Transport in Porous Media, 2019, 128, 123-151. | 2.6 | 8 |
| 67 | Physics-Driven Interface Modeling for Drainage and Imbibition in Fractures. , 2007, , . | | 7 |
| 68 | The Effect of Microporosity on Transport Properties in Tight Reservoirs. , 2011, , . | | 7 |
| 69 | Comparative Study of Formation Damage due to Straining and Surface Deposition in Porous Media. , 2016, , . | | 7 |
| 70 | Nanopaint application for flow assurance with electromagnetic pig. Journal of Petroleum Science and Engineering, 2019, 180, 320-329. | 4.2 | 7 |
| 71 | Optimizing Proppant Placement in Rough-Walled Rock Fractures. , 2019, , . | | 7 |
| 72 | Experimental Investigation of Trapped Oil Mobilization with Ferrofluid. SPE Journal, 2022, 27, 753-770. | 3.1 | 7 |

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| 73 | Mechanisms by Which Methane Gas and Methane Hydrate Coexist In Ocean Sediments. , 2008, , . | | 6 |
| 74 | Investigating Matrix-Fracture Transfer via a Level Set Method for Drainage and Imbibition. , 2008, , . | | 6 |
| 75 | A level set method for materials with texturally equilibrated pores. Journal of Computational Physics, 2015, 297, 480-494. | 3.8 | 6 |
| 76 | Estimating Mudrock Oil-Water Relative Permeability Curves Using Digital Rock Physics. , 2017, , . | | 6 |
| 77 | Influence of Numerical Cementation on Multiphase Displacement in Rough Fractures. Transport in Porous Media, 2017, 116, 275-293. | 2.6 | 6 |
| 78 | Replicating carbonaceous vug in synthetic porous media. MethodsX, 2018, 5, 808-811. | 1.6 | 6 |
| 79 | ANALYTICAL ELECTRICAL CONDUCTIVITY MODELS FOR SINGLE-PHASE AND MULTI-PHASE FRACTAL POROUS MEDIA. Fractals, 2022, 30, . | 3.7 | 6 |
| 80 | MPLBM-UT: Multiphase LBM library for permeable media analysis. SoftwareX, 2022, 18, 101097. | 2.6 | 6 |
| 81 | Improving Fidelity of Network Models for Drainage and Imbibition. , 2009, , . | | 5 |
| 82 | Image-Based Modeling of Flow in Natural Partially Cemented Fractures. , 2013, , . | | 5 |
| 83 | Excitable Nanoparticles for Trapped Oil Mobilization. , 2014, , . | | 5 |
| 84 | 3D Dataset of binary images: A collection of synthetically created digital rock images of complex media. Data in Brief, 2022, 40, 107797. | 1.0 | 5 |
| 85 | Volume determination for bulk materials in bunkers. International Journal for Numerical Methods in Engineering, 2004, 61, 2239-2249. | 2.8 | 4 |
| 86 | Contact line extraction and length measurements in model sediments and sedimentary rocks. Journal of Colloid and Interface Science, 2012, 368, 558-577. | 9.4 | 4 |
| 87 | Combination of Lattice Density Functional Theory and a Multi-Scale Network Model for Sorption Isotherms Study in Tight Formations. , 2016, , . | | 4 |
| 88 | Determining the Impact of Mineralogy Composition for Multiphase Flow Through Hydraulically Induced Fractures. , 2018, , . | | 4 |
| 89 | Identification and Evaluation of Viscoelastic Surfactants Including Smart Viscoelastic Systems for Generation and Stabilization of Ultra-Dry N2 and CO2 Foam for Fracturing Fluids and Proppant Transport. , 2018, , . | | 4 |
| 90 | Simulation of Gas Adsorption and Capillary Condensation in Shale Nanopores Using Lattice Boltzmann Modeling. , 2018, , . | | 4 |

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| 91 | The effect of vug distribution on particle straining in permeable media. Journal of Hydrology, 2020, 580, 124306. | 5.4 | 4 |
| 92 | Permeability Estimation of Damaged Formations Near Wellbore. , 2011, , . | | 3 |
| 93 | A Quantitative Pore-Scale Investigation On The Paragenesis of Wilcox Tight Gas Sandstone. , 2015, , . | | 3 |
| 94 | Viscosity and Stability of Dry CO2 Foams for Improved Oil Recovery. , 2016, , . | | 3 |
| 95 | The Impact of Natural Fracture Thickness on Hydraulic Fracture Interaction Mechanics. , 2018, , . | | 3 |
| 96 | Spatial and Temporal Patterns in Particle Retention in Vuggy Porous Media. , 2020, , . | | 3 |
| 97 | Pore scale coupling of fluid displacement and unconsolidated sediment mechanics. International Journal of Oil, Gas and Coal Technology, 2012, 5, 157. | 0.2 | 2 |
| 98 | A Pore Scale Analysis of Restricted Diffusion in Shale Gas Media. , 2014, , . | | 2 |
| 99 | Slip-Flow in Complex Porous Media as Determined by Lattice Boltzmann Modeling. , 2015, , . | | 2 |
| 100 | Minimum divergence viscous flow simulation through finite difference and regularization techniques. Advances in Water Resources, 2016, 95, 29-45. | 3.8 | 2 |
| 101 | Nanopaint-Aided Electromagnetic Pigging in Pipelines and Production Tubing. , 2019, , . | | 2 |
| 102 | Microfluidic and Numerical Investigation of Trapped Oil Mobilization with Hydrophilic Magnetic Nanoparticles. , 2020, , . | | 2 |
| 103 | Comparison of Wireline Log and SEM Image-Based Measurements of Porosity in Overburden Shales. , 2020, , . | | 2 |
| 104 | Capillary rise in vuggy media. Advances in Water Resources, 2020, 143, 103671. | 3.8 | 2 |
| 105 | Understanding Foam Flow in Rough Carbonate Fractures. , 2022, , . | | 2 |
| 106 | Nano-scale Wetting Film Impact on Multiphase Transport Properties in Porous Media. Transport in Porous Media, 0, , . | 2.6 | 2 |
| 107 | Capillarity Controlled Displacements in Sediments With Movable Grains: Implications for Growth of Methane Hydrates. , 2008, , . | | 1 |
| 108 | Slip-Flow in Shale as Determined by Pore-Scale Lattice Boltzmann Modeling. , 2015, , . | | 1 |

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| 109 | Probing the Wettability of Mudrocks at the Pore-scale Using Nanoparticle Tracers. , 2018, , . | | 1 |
| 110 | Pore Scale Study of Methane Advection and Diffusion in Image-Based 3-D Reconstruction of Shale with Consideration of Bound Water. , 2020, , . | | 1 |
| 111 | Investigating spontaneous capillarity-controlled events via the level set method. Proceedings in Applied Mathematics and Mechanics, 2007, 7, 1141601-1141602. | 0.2 | 0 |
| 112 | Coupling Capillarity-Controlled Fluid Displacement With Unconsolidated Sediment Mechanics: Grain Scale Fracture Opening. , 2009, , . | | 0 |
| 113 | A Quantitative Pore-Scale Investigation on the Paragenesis of Wilcox Tight Gas Sandstone. , 2015, , . | | 0 |
| 114 | Comment on Xu et al. 2017. AICHE Journal, 2017, 63, 4717-4718. | 3.6 | 0 |
| 115 | Editorial. Journal of Contaminant Hydrology, 2018, 212, 1-2. | 3.3 | 0 |
| 116 | Improved Digital Rocks-Based Model for NMR Permeability Estimation in Vuggy Deepwater Carbonates. , 2019, , . | | 0 |
| 117 | Simulating the Efficiency of Electromagnetic Pigging in Pipelines and Production Tubing Aided by Nanopaint. SPE Journal, 2022, , 1-12. | 3.1 | 0 |