

首页 > 科研团队 > 提高采收率研究所

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个人简介

王付勇，博士，副研究员，硕士生导师，斯坦福大学访问学者，2015年入选北京市优秀人才培养资助计划，2017年入选学校青年拔尖人才计划。2009年本科毕业于中国石油大学（华东），2013年博士毕业于英国赫瑞-瓦特大学石油工程专业。主要研究方向包括：非常规油气藏开发与提高采收率、油气藏动态监测与智能井、微纳米尺度多孔介质渗流规律、人工智能技术在石油工程领域应用等。近年来，主持国家自然科学基金2项（青年、面上项目）、北京市自然科学基金1项、北京市优秀人才资助1项等多个项目。在TiPM, JPSE, JNGSE, Fractals, JPM等SCI期刊和SPE年会、EAGE年会等国际会议上发表高水平研究论文30余篇，申请发明专利6项，其中授权发明专利2项，并获得中国石油和化学工业联合会科技进步奖二等奖、油气藏动态监测与管理国际会议优秀论文一等奖等多项奖励。现为SPE、EAGE会员和中国石油协会会员，担任20余个SCI/EI期刊的审稿人及一个SCI期刊的客座编辑。

研究方向

1. 非常规油气藏开发与提高采收率
2. 油气藏动态监测与智能井
3. 微纳米尺度多孔介质渗流机理
4. 人工智能技术在石油工程领域应用

教育背景

2009.09-2013.01, 英国赫瑞-瓦特大学, 博士研究生

2005.09-2009.07, 中国石油大学（华东）, 大学本科

工作经历

2016.06-至今, 中国石油大学（北京）提高采收率研究院, 副研究员

2016.07-2016.08, 美国斯坦福大学地球、能源与环境学院, 访问学者

2013.09-2016.06, 中国石油大学(北京)提高采收率研究院, 助理研究员

荣获奖励

2014.10, 中国石油和化学工业联合会科技进步奖二等奖

2014.08, 年油气藏动态监测与管理国际会议优秀论文一等奖

科研项目

1. 国家自然科学基金-面上项目, 2019.01-2022.12, 项目负责人

2. 国家自然科学基金-青年基金项目, 2017.01-2019.12, 项目负责人

3. 北京市自然科学基金-青年基金项目, 2016.01-2017.12, 项目负责人

4. 北京市优秀人才培养资助项目, 2016.01-2017.06, 项目负责人

5. 中国石油大学(北京)青年拔尖人才资助项目, 2016.01-2018.12, 项目负责人

6. 中国石油大学(北京)优秀青年教师研究项目, 2016.01-2018.12, 项目负责人

7. 中国石油大学(北京)引进人才科研启动基金, 2013.07-2016.06年, 项目负责人

8. 长庆油田科研服务项目, 2017年盆地油藏评价重点地区储层孔隙结构特征测试, 2017.09年-2018.09, 项目负责人

9. 中石化石油勘探开发研究院国家重大专项外协项目, 油气界面张力测试, 2018.01-2018.12, 项目负责人

10. 中石化石油勘探开发研究院国家重大专项外协项目, 基于深度学习的测井岩相自动识别及油藏自动历史拟合方法, 2019.01-2019.12, 项目负责人

研究论文(第一作者/通讯作者)

期刊论文:

1. Wang, F.*, Jiao, L., Lian, P. and Zeng, J., 2019. Apparent gas permeability, intrinsic permeability and liquid permeability of fractal porous media: Carbonate rock study with experiments and mathematical modelling. *Journal of Petroleum Science and Engineering*, 173, 1304-1315.

2. Li, X., Gao, Z., Fang, S., Ren, C., Yang, K. and Wang, F.*, 2019. Fractal characterization of nanopore structure in shale, tight sandstone and mudstone from the ordos basin of china using nitrogen adsorption. *Energies*, 12(4), 583.

3. Wang, F.*, Yang, K. and Cai, J., 2018. Fractal characterization of tight oil reservoir pore structure using nuclear magnetic resonance and mercury intrusion porosimetry. *Fractals-Complex Geometry Patterns and Scaling in Nature and Society*, 26(02), 1840017.

4. Wang, F.*, Lian, P., Jiao, L., Liu, Z. and Zhao, J., 2018. Fractal analysis of microscale and nanoscale pore structures in carbonates using high-pressure mercury intrusion. *Geofluids*, 2018, 1840017.

5. Wang, F.*, Jiao, L., Liu, Z., Tan, X., Wang, C. and Gao, J., 2018. Fractal analysis of pore structures in low permeability sandstones using mercury intrusion porosimetry. *Journal of Porous Media*, 21(11), 1097-1119.

6. Wang, F.*, 2018. An improved algorithm for unknown flow rate history reconstruction with the Haar wavelet transform. *International Journal of Oil, Gas and Coal Technology*, 19(1), 59-82.

7. Wang, F.*, Liu, Z., Cai, J. and Gao, J., 2018. A fractal model for low-velocity non-Darcy flow in tight oil reservoirs considering boundary-layer effect. *Fractals-Complex Geometry Patterns and Scaling in Nature and Society*, 26(05), 1850077.

8. Chen, W., Zhang, Z., Liu, Q., Chen, X., Opoku Appau, P. and Wang, F.*, 2018. Experimental investigation of oil recovery from tight sandstone oil reservoirs by pressure depletion. *Energies*, 11(10), 2667.

9. Li, B., Tan, X., Wang, F.*, Lian, P., Gao, W. and Li, Y., 2017. Fracture and vug characterization and carbonate rock type automatic classification using X-ray CT images. *Journal of Petroleum Science and Engineering*, 153, 88-96.

10. Wang, F.*, Liu, Z., Jiao, L., Wang, C. and Guo, H., 2017. A fractal permeability model coupling boundary-layer effect for tight oil reservoirs. *Fractals-Complex Geometry Patterns and Scaling in Nature and Society*, 25(05), 1750042.

11. Wang, F.*, Li, Y., Tang, X., Chen, J. and Gao, W., 2016. Petrophysical properties analysis of a carbonate reservoir with natural fractures and vugs using X-ray computed tomography. *Journal of Natural Gas Science and Engineering*, 28, 215-225.

12. Wang, F.*, 2016. Continuous reservoir model calibration with time-dependent reservoir properties diagnosed from long-term down-hole transient pressure data. *Arabian Journal of Geosciences*, 9(4), 254.

13. Wang, F.* and Zheng, S., 2016. Diagnostic of changes in reservoir properties from long-term transient pressure data with wavelet transform. *Journal of Petroleum Science and Engineering*, 146, 921-931.

14. Wang, F.*, 2015. Diagnosis of nonlinear reservoir behaviour for correctly applying the superposition principle and deconvolution. *Journal of Natural Gas Science and Engineering*, 26, 630-641.

15. Wang, F.* and Zheng, S., 2013. Unknown rate history calculation from down-hole transient pressure data using wavelet transform. *Transport in Porous Media*, 96(3), 547-566.

会议论文:

1. Wang, F.*, 2018. Determining nonsynchrony between PDG transient temperature, pressure, and Flow-Rate data with wavelet transform, ECMOR XVI-16th European Conference on the Mathematics of Oil Recovery.

2. Wang, F.* and Zhao, J., 2018. A fractal model for oil recovery by spontaneous water imbibition in tight oil reservoirs, ECMOR XVI-16th European Conference on the Mathematics of Oil Recovery.
3. Wang, F.*, Wang, C., Liu Z., Jiao, L., 2017. Pore structure characterization of a tight oil reservoir by mercury intrusion porosimetry using different fractal models. Abstract presented in 9th International Conference on Porous Media & Annual Meeting.
4. Wang, F.*, Zhang, Y., Zheng, S., et al., 2016. Oil flow rate history reconstruction using downhole transient temperature data with wavelet transform, extended abstract presented 15th European Conference on the Mathematics of Oil Recovery (ECMOR XV).
5. Wang, F.*, Gao, W., Wang, C. et al., 2016. Fracture and vug characterization and carbonate rock classification in a fractured-vuggy carbonate reservoir with CT, extended abstract presented at 78th EAGE Conference & Exhibition.
6. Wang, F.* and Zheng, S., 2014. Wavelet frequency analysis of long-term transient pressure from permanent down-hole gauges (PDG) for the real-time reservoir monitoring. SPE-170582-MS presented at SPE Annual Technical Conference and Exhibition.
7. Wang, F.*, 2014. A Method of Reconstructing Flow Rate History from Permanent Down-hole Gauge Pressure Data. Conference paper presented at International Conference & Exhibition on Reservoir Surveillance and Management (优秀会议论文一等奖).

著作及专利

著作章节:

1. Wang, F.* and Cai, J., 2019. Characterization of petrophysical properties in tight sandstone reservoirs. In *Petrophysical Characterization and Fluids Transport in Unconventional Reservoirs*. Elsevier, pp. 37-59.

专利

1. 一种基于小波变换来判断油藏物性参数是否变化的方法(发明专利, 已授权), 201410549562.1, 第1发明人
2. 一种生产井瞬时流量的计算方法(发明专利, 已授权), 201510323955.5, 第一发明人
3. 岩心自发渗吸采收率预测方法及系统(发明专利, 申请), 201910106402.2, 第1申请人
4. 一种获取致密油藏岩心的液体渗透率的方法及装置(发明专利, 申请), 201710260055.X, 第1申请人
5. 一种表征致密油藏低速非达西渗流特征的方法及装置(发明专利, 申请) 201710684244.X, 第1申请人
6. 一种基于扫描图像判断碳酸盐岩孔隙类型的方法(发明专利, 申请), 201610112618.6, 第6申请人

学术兼职

1. 国际石油工程师协会(SPE)会员, 欧洲地学家与工程师学会(EAGE)会员, 中国石油协会(CPS)会员。
2. Fuel、AAPG Bulletin、International Journal of Heat and Mass Transfer、Journal of Petroleum Science and Engineering、Journal of Natural Gas Science and Engineering、Journal of Industrial and Engineering Chemistry、Petroleum Science、Int. J. of Oil, Gas and Coal Technology、Applied Mathematical Modelling、Fractals、Geofluids、Acta Geotechnica、Acta Geologica Sinica(English Edition)、Special Topics & Reviews in Porous Media、Advances in Materials Science and Engineering、IEEE Access、REVISTA CT&F – Ciencia, Tecnología y Futuro、The Open Petroleum Journal、Heliyon等20余个SCI、EI期刊审稿人。
3. 担任Special Topics & Reviews in Porous Media期刊客座编辑, 负责期刊专刊《Theoretical and Mathematical Modeling of Flow and Transport in Porous Media》论文审稿、编辑等工作。
4. 国家自然科学基金通信评审专家; 教育部学位与研究生教育发展中心研究生学位论文通信评审专家。