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🌐 ResearchGate

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工作经历

2024.11 – 至今 📌 博士后研究员, 澳大利亚科廷大学. 导师: Prof. Klaus Regenauer-Lieb.

教育经历

- 2020.9 – 2024.11 📌 博士, 香港大学, 岩土工程. 导师: Dr. Manman Hu.
学位论文: *Non-local reaction-diffusion instabilities in geomaterials and geosystems: modeling and potential applications.*
- 2024.2 – 2024.5 📌 访问学者, WA School of Mines: Minerals, Energy and Chemical Engineering, Curtin University (Perth, Australia). 导师: Prof. Klaus Regenauer-Lieb.
- 2017.9 – 2020.6 📌 硕士, 中国科学技术大学, 流体力学 (校优秀毕业生). 导师: 卢德唐 教授.
学位论文: 层理页岩动载作用下力学特性及破坏机制研究.
- 2013.9 – 2017.6 📌 学士, 中国矿业大学, 工程力学 (绩点排名, 2/86, 校优秀毕业生).
导师: 张志镇 副教授. 学位论文: 类层理岩石变形破坏机制及本构模型研究.

研究方向

- 📌 深部复杂应力条件下岩石脆-延性转化本构模型及局部化变形失稳数值模拟.
- 📌 多物理场多尺度下地质系统不稳定性: 分岔, 自组织及斑图形成.
- 📌 基于物理信息神经网络 (PINN) 的偏微分方程数值求解 (正向预测与参数反演).

论文

期刊论文

- 1 Q. Sun, K. Regenauer-Lieb, and M. Hu, "A reaction-cross-diffusion formulation for the evolution of compaction bands," *Journal of Geophysical Research: Solid Earth*, 2025 (**Nature Index**). 🔗 URL: <https://doi.org/10.1029/2024JB031052>.
- 2 Q. Sun, X. Chen, K. Regenauer-Lieb, and M. Hu, "A thermodynamically based modified Cam-Clay model for post-bifurcation behavior of deformation bands," *Journal of Geophysical Research: Solid Earth*, 2024 (**Nature Index**). 🔗 URL: <https://doi.org/10.1029/2023JB028100>.
- 3 Q. Sun, K. Regenauer-Lieb, and M. Hu, "Inversion of fluid-release rates from Episodic Tremor and Slip signals in subduction zones via a coarse-grained reaction diffusion model," *Physics of the Earth and Planetary Interiors*, 2024. 🔗 URL: <https://doi.org/10.1016/j.pepi.2024.107223>.

- 4 M. Hu, **Q. Sun**, C. Schrank, and K. Regenauer-Lieb, “Cross-scale dynamic interactions in compacting porous media as a trigger to pattern formation,” *Geophysical Journal International*, 2022.  URL: <https://doi.org/10.1093/gji/ggac115>.
- 5 K. Regenauer-Lieb, M. Hu, C. Schrank, X. Chen, S. P. Clavijo, U. Kelka, A. Karrech, O. Gaede, T. Blach, H. Roshan, and **Q. Sun**, “Cross-diffusion waves as a trigger for multiscale, multiphysics instabilities: Application to earthquakes,” *Solid Earth*, 2020.  URL: <https://doi.org/10.5194/se-12-1829-2021>.
- 6 K. Regenauer-Lieb, M. Hu, **Q. Sun**, C. Liu, and Z. Zhu, “Thermodynamic perspectives on deformation bands in geological media: From compaction to Turing instabilities,” *Earth-Science Reviews*, 2025 (under review).
- 7 **孙清佩**, 张志镇, 李培超, 孙自昱, 卢德唐, and 高峰, “黑色页岩动载破坏的层理效应及损伤本构模型研究,” *岩石力学与工程学报*, 2019.
- 8 **孙清佩**, 张志镇, 杜雷鸣, 侯鹏, 滕腾, and 尚晓吉, “层理倾角对岩石力学与声发射特征的影响研究,” *金属矿山*, 2017.
- 9 咸玉席, 刘志远, 张俊江, **孙清佩**, 董研, and 卢德唐, “三向围压下碳酸盐岩的动态力学试验,” *高压物理学报*, 2019.

会议论文

- 1 **Q. Sun**, M. Hu, and K. Regenauer-Lieb, “Cross-scale dynamic interactions in compacting porous geomaterials as a trigger to instabilities,” in *International Workshop on Bifurcation and Degradation in Geomaterials*, Springer, 2022, pp. 67–73.  URL: https://doi.org/10.1007/978-3-031-22213-9_8.

科研项目

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| 2022.1 – 2025.12 | ■ 香港研究资助局, General Research Fund, Environmental Geomechanics: from Chemical Aging to Biochemically Improved Soils. 91 万港元, 在研, 参与. |
| 2020.6 – 2024.6 | ■ 香港研究资助局, Early Career Scheme, A Multi-physics Study on Enhanced Cracking in Geo-energy Engineering, 74 万港元, 结题, 参与. |
| 2020.9 – 2022.6 | ■ Australian Research Council, Discovery Projects, The role of pressure waves on the mechanics of earthquakes and faulting. 43 万澳元, 结题, 参与. |

获奖情况

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| 2017-2020 | ■ 三次获校一等学业奖学金, 中国科技大学优秀毕业生. |
| 2013-2017 | ■ 两次校一等奖学金, 一次二等奖学金, 中国矿业大学优秀毕业生, 免试保送中国科技大学攻读硕士研究生. |
| 2016 | ■ 江苏省首届力学创新创业竞赛二等奖, 江苏省力学协会. 论文题目: 考虑气体溶解的瓦斯三相耦合方程. |