Stanford

Oleg Volkov

Sr Res Scientist-Physical, Energy Science & Engineering

Bio

BIO

Dr. Volkov has over sixteen years of experience in constrained optimization applied research. After receiving his M.Sc. degree in Mechanical Engineering (Ecole Polytechnique de Montreal) and a Ph.D. degree in Applied Mathematics (University of Montreal), he then worked on industrial contracts related to the optimal control of phase transition systems and optimal design of porous media. Subsequently, Dr. Volkov served a one-year fixed term at the rank of an Assistant Professor in Physics at St. Francis Xavier University in Nova Scotia. His current research interests include the implementation and refinement of gradient-based optimization methods in application to hydrocarbon field development.

ACADEMIC APPOINTMENTS

- Sr Res Scientist-Physical, Energy Science & Engineering

Publications

PUBLICATIONS

- **Optimization of Subsurface Flow Operations Using a Dynamic Proxy Strategy** *MATHEMATICAL GEOSCIENCES*
  Ma, Z., Kim, Y., Volkov, O., Durlofsky, L. J.
  2022
- **Effective treatment of geometric constraints in derivative-free well placement optimization** *JOURNAL OF PETROLEUM SCIENCE AND ENGINEERING*
  Zou, A., Ye, T., Volkov, O., Durlofsky, L. J.
  2022; 215
- **Multigroup strategy for well control optimization** *JOURNAL OF PETROLEUM SCIENCE AND ENGINEERING*
  Ma, Z., Volkov, O., Durlofsky, L. J.
  2022; 214
- **A two-stage optimization strategy for large-scale oil field development** *OPTIMIZATION AND ENGINEERING*
  Nasir, Y., Volkov, O., Durlofsky, L. J.
  2021
- **Reduced-Order Modeling of Coupled Flow and Quasistatic Geomechanics**
  Jin, Z., Garipov, T., Volkov, O., Durlofsky, L. J.
  SOC PETROLEUM ENG.2020: 326–46

- **Gradient-based Pareto optimal history matching for noisy data of multiple types** *COMPUTATIONAL GEOSCIENCES*
  Volkov, O., Bukshtynov, V., Durlofsky, L. J., Aziz, K.
  2018; 22 (6): 1465–85

- **Joint optimization of economic project life and well controls** *SPE Journal*
  Shirangi, M. G., Volkov, O., Durlofsky, L. J.
  2018; 23 (2): 482-497

- **Gradient-based constrained well placement optimization** *Journal of Petroleum Science and Engineering*
  Volkov, O., Bellout, M. C.
  2018; 171: 1052-1066

- **Gradient-based production optimization with simulation-based economic constraints**
  Volkov, O., Bellout, M. C.
  SPRINGER.2017: 1385–1402

- **Joint optimization of economic project life and well controls** *SPE Reservoir Simulation Conference*
  Shirangi, M. G., Volkov, O., Durlofsky, L. J.
  SPE-182642-MS.2017

- **Effect of time stepping strategy on adjoint-based production optimization** *COMPUTATIONAL GEOSCIENCES*
  Volkov, O., Voskov, D. V.
  2016; 20 (3): 707-722

- **Comprehensive framework for gradient-based optimization in closed-loop reservoir management** *COMPUTATIONAL GEOSCIENCES*
  Bukshtynov, V., Volkov, O., Durlofsky, L. J., Aziz, K.
  2015; 19 (4): 877-897

- **Advanced strategies of forward simulation for adjoint-based optimization** *SPE Reservoir Simulation Symposium*
  Voskov, D. V., Volkov, O.
  SPE-163592-MS.2013

- **Development of efficient constraint-handling approaches for well placement optimization** *ECMOR XVI - 16th European Conference on the Mathematics of Oil Recovery*
  Bellout, M. C., Volkov, O.
  2018