No	Title	Authors	Affiliation
1	A soft computing approach for estimating the specific heat capacity of molten salt-based nanofluids	Muhammed A. Hassan ¹ , Debjyoti Banerjee ²	¹ Cairo University ² Texas A&M University
2	A framework for reduced-order modeling of turbulent reacting flows	Opeoluwa Owoyele ¹ , Tarek Echekki ² , Pinaki Pal ²	¹ Argonne National Laboratory ² North Carolina State University
3	Neural network flame closure for a turbulent combustor with unsteady pressure	Zeinab Shadram ¹ , Tuan Nguyen ² , Athanasios Sideris ¹ , William Sirignano ¹	¹ University of California Irvine ² Sandia National Laboratories
4	Subgrid-scale parametrization of unresolved scales in forced Burgers equation using generative adversarial networks (GAN)	Jeric Alcala, Ilya Timofeyev	University of Houston
5	Oil production analysis by machine learning methods	Darkhan Akhmed-Zaki Timur Imankulov, Yedil Nurakhov, Yerzhan Kenzhebek	Al-Farabi Kazakh National University
6	Multi-fidelity learning with heterogeneous domains	Soumalya Sarkar, Michael Joly, Paris Perdikaris	University of Pennsylvania
7	In-situ coupled OpenFOAM and TensorFlow: Generic data science for CFD	Romit Maulik ¹ , Himanshu Sharma ¹ , Saumil Patel ² , Bethany Lusch ¹ , Elise Jennings ¹	¹ Argonne Leadership Computing Facility Argonne National Laboratory ² Computational Physics Division Argonne National Laboratory
8	Data-driven modeling for fluid dynamics: Turbulence closure model order reduction and super resolution	Suraj Pawar ¹ , Shady Ahmed ¹ , Harsha Vaddireddy ¹ , Romit Maulik ² , Omer San ¹ , Adil Rasheed ³	¹ Oklahoma State University ² Argonne National Laboratory ³ Norwegian University of Science and Technology
9	PDE discovery using convolutional LSTM	Kazem Meidani, Amir Barati Farimani	Carnegie Mellon University

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10	Machine learning potential for phonon transport in perfect Si and Si with vacancies	Ruiqiang Guo, Hasan Babaei, Amirreza Hashemi, Sangyeop Lee	University of Pittsburgh
11	Machine learning enabled study of phonon transport from first principles	Sangyeop Lee, Ruiqiang Guo	University of Pittsburgh
12	Predicting time dependent solutions to the viscous Burger's equation using Gaussian process regression	Francis Ogoke ¹ , Michael Glinsky ² , Amir Barati Farimani ¹	¹ Carnegie Mellon University ² Sandia National Laboratories
13	Data-driven prediction of a multi-scale Lorenz 96 chaotic system using deep learning methods: Reservoir computing ANN and RNN-LSTM	Pedram Hassanzadeh Ashesh Chattopadhyay Devika Subramanian	Rice University
14	Learn a low-rank arbitrary Lagrangian Eulerian frame to reduce the dimensionality of convection dominated nonlinear flows	Rambod Mojgani Maciej Balajewicz	University of Illinois at Urbana-Champaign
15	KiNet: A deep neural network representation of chemical kinetics	Weiqi Ji, Sili Deng	Massachusetts Institute of Technology
16	Time-dependent POD (tPOD): Real-time reduced order modeling	Michael Donello, Hessam Babaee	University of Pittsburgh
17	Physics embedded neural networks for spatio-temporal turbulence	Arvind Mohan ¹ , Nicholas Lubbers ¹ , Daniel Livescu ¹ , Misha Chertkov ²	¹ Los Alamos National Laboratory ² University of Arizona
18	Machine learning for turbulence in supernovae	Platon Karpov Chengkun Huang Ghanshyam Pilania Stan Woosley Chris Fryer	Los Alamos National Laboratory
19	Deep learning for transport in heterogeneous media: Forward and inverse problems	Haiyi Wu, Wen-Zhen Fang, Hongwei Zhang, Qinjun Kang, Guoqing Hu, Wen-Quan Tao, Rui Qiao	Virginia Polytechnic Institute and State University

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20	Neural network potential for lattice dynamics calculations and thermal	Jie Gong, Hyun-Young Kim,	Carnegie Mellon University
	conductivity prediction	Alan McGaughey	,
21	Prospect of data-driven red blood cell micro mechanical models for	Amir Saadat	Stanford University
	computational simulations	Eric Shaqfeh	Stamord Oniversity
22		Arash Nouri,	
	Real-time reduced order modeling for chemical kinetics	Hessam Babaee,	University of Pittsburgh
22		Peyman Givi	
23	Predicting droplet traffic in microfluidic networks using machine	Masoud Norouzi,	Tarras Tarla Universita
	learning	Siva Vanapalli,	Texas Tech University
24		Mark Vaughn Supraj Prakash ¹ ,	
24	Data-driven classification and modeling of combustion regimes in a	Shivam Barwey ¹ ,	¹ University of Michigan
	detonation wave	Malik Hassanaly ² ,	² National Renewable Energy Laboratory
	detoliation wave	Venkat Raman ¹	Transfer Rene waste Energy East activity
25	Data-driven (super-) parametrization with deep learning:	Ashesh Chattopadhyay	Rice University
	Experimentation with the multi-scale Lorenz' 96 system and transfer	Adam Subel	
	learning	Pedram Hassanzadeh	
26	Spatio-temporal predictions of IC engine flow field using ResNet and bi-	David Hung	University of Michigan-Shanghai Jiao Tong University
	RNN models	Fengnian Zhao	Joint Institute
		Mengqi Liu	
		Zhiming Ruan	
		Zhangyu Jin	
27	Embedded tensor basis neural networks for RANS simulation of 3D	Andrew J. Banko	Stanford University
	flows	David S. Ching	Sandia National Laboratories
20		John K. Eaton	Stanford University
28	Tensor basis neural networks for scalar flux modeling	Pedro M. Milani	Stanford University Citrine Informatics
		Julia Ling John K. Eaton	Stanford University
29	Machine learning for segmentation of echocardiography	Taeouk Kim	Texas A&M University
29	tracenne rearning for segmentation of conocardiography	Mohammadali	Todas Accivi University
		Hedayat	
		Marek Belohlavek	
		Iman Borazjani	
30	A phase shift DNN for solving PDEs with oscillatory solutions	Wei Cai	Southern Methodist University
	·	Xiaoguang Li	·
		Lizuo Liu	

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3		Optimal sensor location and early detection of lean blowout in a realistic gas turbine combustor using machine learning	Veeraraghava Hasti, Abhishek Navarkar, Jay P. Gore	Purdue University