

ISSN: 0567-7718

CN: 11-2063/03

AMS ACTA MECHANICA SINICA

Volume 37 · Number 12 · December 2021



Q K 2 2 2 3 5 2 7

Artificial intelligence in fluid mechanics

Guest Editors: Weiwei Zhang · Bernd Noack



The Chinese Society
of
Theoretical and
Applied Mechanics



Institute of Mechanics,
Chinese Academy
of Sciences

Springer

万方数据

ACTA MECHANICA SINICA

Volume 37 · Number 12 · December 2021

THEMED PAPERS ON “ARTIFICIAL INTELLIGENCE IN FLUID MECHANICS”

- 1715 **Artificial intelligence in fluid mechanics**
W.-W. Zhang · B.R. Noack
- 1718 **Applying machine learning to study fluid mechanics**
S.L. Brunton
- 1727 **Physics-informed neural networks (PINNs) for fluid mechanics: a review**
S. Cai · Z. Mao · Z. Wang · M. Yin · G.E. Karniadakis
- 1739 **Genetic-algorithm-based artificial intelligence control of a turbulent boundary layer**
J. Yu · D. Fan · B.R. Noack · Y. Zhou
- 1748 **Practical framework for data-driven RANS modeling with data augmentation**
X. Guo · Z. Xia · S. Chen
- 1757 **Multilayer perceptron neural network activated by adaptive Gaussian radial basis function and its application to predict lid-driven cavity flow**
Q. Jiang · L. Zhu · C. Shu · V. Sekar
- 1773 **Deconvolutional artificial-neural-network framework for subfilter-scale models of compressible turbulence**
Z. Yuan · Y. Wang · C. Xie · J. Wang
- 1786 **Bayesian optimization for active flow control**
A.B. Blanchard · G.Y. Cornejo Maceda · D. Fan · Y. Li · Y. Zhou · B.R. Noack · T.P. Sapsis
- 1799 **Aerodynamic modeling using an end-to-end learning attitude dynamics network for flight control**
T. Zhao · G. Chen · X. Wang · E. Yong · W. Qian
- 1812 **Data-driven Bayesian inference of turbulence model closure coefficients incorporating epistemic uncertainty**
D. Maruyama · P. Bekemeyer · S. Götz · S. Coggon · S. Sharma

CORRECTION

- 1839 **Correction to: Large deformation plasticity**
O.T. Bruhns
- 1840 **Correction to: Practical framework for data-driven RANS modeling with data augmentation**
X. Guo · Z. Xia · S. Chen

<http://ams.cstam.org.cn> www.springer.com/journal/10409 Local Post Office Code No. 2-703



ACTA
MECHANICA
SINICA
力学学报(英文版)

ISSN 0567-7718



ACTA MECHANICA SINICA

Volume 37 · Number 12 · December 2021

THEMED PAPERS ON “ARTIFICIAL INTELLIGENCE IN FLUID MECHANICS”

- 1715 **Artificial intelligence in fluid mechanics**
W.-W. Zhang · B.R. Noack
- 1718 **Applying machine learning to study fluid mechanics**
S.L. Brunton
- 1727 **Physics-informed neural networks (PINNs) for fluid mechanics: a review**
S. Cai · Z. Mao · Z. Wang · M. Yin · G.E. Karniadakis
- 1739 **Genetic-algorithm-based artificial intelligence control of a turbulent boundary layer**
J. Yu · D. Fan · B.R. Noack · Y. Zhou
- 1748 **Practical framework for data-driven RANS modeling with data augmentation**
X. Guo · Z. Xia · S. Chen
- 1757 **Multilayer perceptron neural network activated by adaptive Gaussian radial basis function and its application to predict lid-driven cavity flow**
Q. Jiang · L. Zhu · C. Shu · V. Sekar
- 1773 **Deconvolutional artificial-neural-network framework for subfilter-scale models of compressible turbulence**
Z. Yuan · Y. Wang · C. Xie · J. Wang
- 1786 **Bayesian optimization for active flow control**
A.B. Blanchard · G.Y. Cornejo Maceda · D. Fan · Y. Li · Y. Zhou · B.R. Noack · T.P. Sapsis
- 1799 **Aerodynamic modeling using an end-to-end learning attitude dynamics network for flight control**
T. Zhao · G. Chen · X. Wang · E. Yong · W. Qian
- 1812 **Data-driven Bayesian inference of turbulence model closure coefficients incorporating epistemic uncertainty**
D. Maruyama · P. Bekemeyer · S. Götz · S. Coggon · S. Sharma

CORRECTION

- 1839 **Correction to: Large deformation plasticity**
O.T. Bruhns
- 1840 **Correction to: Practical framework for data-driven RANS modeling with data augmentation**
X. Guo · Z. Xia · S. Chen

<http://ams.cstam.org.cn> www.springer.com/journal/10409 Local Post Office Code No. 2-703



ACTA
MECHANICA
SINICA
力学学报(英文版)

ISSN 0567-7718

