

**Workshop on Dense Matter
Equation of State and
Frontiers in Neutron Star
Physics**

Report of Contributions

Contribution ID: 1

Type: **not specified**

Exploration of QCD matter in extreme meets Deep Learning

Thursday, 28 March 2024 09:30 (40 minutes)

Presenter: ZHOU, Kai (CUHK-Shenzhen)

Session Classification: low-energy nucl-th/exp, heavy-ions, NS EoS

Contribution ID: 2

Type: **not specified**

Relativistic ab initio description on nuclear matter and neutron star properties

Thursday, 28 March 2024 10:10 (40 minutes)

Presenter: WANG, Sib0 (Chongqing University)

Session Classification: low-energy nucl-th/exp, heavy-ions, NS EoS

Contribution ID: 3

Type: **not specified**

The equation of state from covariant density functional theory

Thursday, 28 March 2024 11:05 (40 minutes)

Presenter: HU, Jinniu (Nankai University)

Session Classification: low-energy nucl-th/exp, heavy-ions, NS EoS

Contribution ID: 4

Type: **not specified**

Extended Skyrme effective interactions for transport model and neutron stars

Thursday, 28 March 2024 11:45 (40 minutes)

Presenter: WANG, Sipei (SJTU)

Session Classification: low-energy nucl-th/exp, heavy-ions, NS EoS

Contribution ID: 5

Type: **not specified**

Quantify the uncertainty of π^-/π^+ ratio in heavy-ion collisions from transport simulations

Thursday, 28 March 2024 14:00 (40 minutes)

Presenter: XU, Jun (Tongji University)

Session Classification: low-energy nucl-th/exp, heavy-ions, NS EoS

Contribution ID: 6

Type: **not specified**

EOS from HICs and neutron stars

Thursday, 28 March 2024 14:40 (40 minutes)

Presenter: ZHANG, Yingxun (China Institute of Atomic Energy)

Session Classification: low-energy nucl-th/exp, heavy-ions, NS EoS

Contribution ID: 7

Type: **not specified**

Effects of First-Order Chiral Phase transition in Relativistic Heavy-Ion Collisions

Thursday, 28 March 2024 15:35 (40 minutes)

Presenter: SUN, Kai-Jia (Fudan University)

Session Classification: low-energy nucl-th/exp, heavy-ions, NS EoS

Contribution ID: 8

Type: **not specified**

Neutrino emission and nucleosynthesis inside and outside highly magnetized neutron stars

Presenter: KAJINO, Toshitaka (Beihang University / University of Tokyo / NAOJ)

Session Classification: NSs, nucleosynthesis, MMA

Contribution ID: 9

Type: **not specified**

MeV gamma rays from neutron star mergers

Friday, 29 March 2024 14:00 (40 minutes)

Presenter: WANG, Xilu (Institute of High Energy Physics, Chinese Academy of Sciences)

Session Classification: NSs, nucleosynthesis, MMA

Contribution ID: 10

Type: **not specified**

Pulsar Polarization Arrays

Friday, 29 March 2024 10:25 (40 minutes)

Presenter: REN, Jing (Institute of High Energy Physics, Chinese Academy of Sciences)

Session Classification: NSs, nucleosynthesis, MMA

Contribution ID: 11

Type: **not specified**

Plausible presence of new state in neutron stars with masses above $0.98M_{\text{TOV}}$ and the bulk properties of the most massive non-rotating neutron star

Friday, 29 March 2024 09:45 (40 minutes)

Presenter: FAN, Yi-Zhong (Purple Mountain Observatory)

Session Classification: NSs, nucleosynthesis, MMA

Contribution ID: 12

Type: **not specified**

Rotating pulsar-like compact stars: the structure and implications

Friday, 29 March 2024 11:20 (40 minutes)

Presenter: LAI, Xiaoyu (Hubei University of Education)

Session Classification: NSs, nucleosynthesis, MMA

Contribution ID: 13

Type: **not specified**

FAST impact on Fast Radio Burst

Friday, 29 March 2024 14:40 (40 minutes)

Presenter: WANG, Weiyang (University of Chinese Academy of Sciences)

Session Classification: NSs, nucleosynthesis, MMA

Contribution ID: 14

Type: **not specified**

Spin and QCD phase structure: recent progress

Saturday, 30 March 2024 09:30 (40 minutes)

Presenter: YIN, Yi (Institute of Modern Physics, Chinese Academy of Sciences)

Session Classification: QCD, GWs, neutrinos

Contribution ID: 15

Type: **not specified**

Dynamical simulations of quark stars in general relativity

Saturday, 30 March 2024 11:05 (40 minutes)

Presenter: LIN, Lap-Ming (The Chinese University of Hong Kong)

Session Classification: QCD, GWs, neutrinos

Contribution ID: 16

Type: **not specified**

Neutrino Opacity with Supernova Matter

Saturday, 30 March 2024 11:45 (40 minutes)

Presenter: GUO, Gang (China University of Geosciences)

Session Classification: QCD, GWs, neutrinos

Contribution ID: 17

Type: **not specified**

Binary neutron star merger as a probe of hadron-quark transition

Saturday, 30 March 2024 14:00 (40 minutes)

Presenter: HUANG, Yong-Jia (Purple Mountain Observatory)

Session Classification: QCD, GWs, neutrinos

Contribution ID: 18

Type: **not specified**

Collective modes in dense matter with relativistic approaches

Saturday, 30 March 2024 14:40 (40 minutes)

Presenter: JIANG, Wei-Zhou (Southeast University)

Session Classification: QCD, GWs, neutrinos

Contribution ID: 19

Type: **not specified**

Impact of Quantum Many-Body Correlations on the Equation of State of Neutron Stars

Sunday, 31 March 2024 09:30 (40 minutes)

Presenter: LIU, Guo-Zhu (University of Science and Technology of China)

Session Classification: EoS, stellar superfluidity, MMA

Contribution ID: 20

Type: **not specified**

QCD equation of state under electromagnetic field

Sunday, 31 March 2024 10:10 (40 minutes)

Presenter: ZHUANG, Pengfei (Tsinghua University)

Session Classification: EoS, stellar superfluidity, MMA

Contribution ID: 21

Type: **not specified**

Superfluidity of neutron star matter –approach from cold atoms

Sunday, 31 March 2024 11:05 (40 minutes)

Presenter: WATANABE, Gentaro (Zhejiang University)

Session Classification: EoS, stellar superfluidity, MMA

Contribution ID: 22

Type: **not specified**

Constraining the speed of sound in neutron stars by inverting neutron star observables in high-density EOS parameter space

Presenter: ZHANG, Naibo (Southeast University)

Session Classification: EoS, stellar superfluidity, MMA

Contribution ID: 23

Type: **not specified**

Confronting strange quark stars with observations

Sunday, 31 March 2024 14:00 (40 minutes)

Presenter: HUANG, Yongfeng (Nanjing University)

Session Classification: EoS, stellar superfluidity, MMA

Contribution ID: 24

Type: **not specified**

Deep learning for nuclear EoS

Sunday, 31 March 2024 14:40 (40 minutes)

Presenter: PANG, Long-Gang (Central China Normal University)

Session Classification: EoS, stellar superfluidity, MMA

Contribution ID: 25

Type: **not specified**

Pion-mediated Cooper pairing of neutrons: beyond the bare vertex approximation

Presenter: ZHU, Hao-Fu (University of Science and Technology of China)

Session Classification: EoS, stellar superfluidity, MMA

Contribution ID: 26

Type: **not specified**

Universal Love-C relation for hybrid stars with crystalline quark core

Presenter: DONG, Zhiyuan (Central China Normal University)

Session Classification: EoS, stellar superfluidity, MMA

Contribution ID: 27

Type: **not specified**

Multi-messenger signatures of accretion-induced collapse

Presenter: YIP, Chun-Ming (The Chinese University of Hong Kong)

Session Classification: EoS, stellar superfluidity, MMA

Contribution ID: 28

Type: **not specified**

Elucidation of neutron star structure due to type I X-ray burst simulation and observation

Monday, 1 April 2024 09:30 (40 minutes)

Presenter: LIU, Helei (Xinjiang University)

Session Classification: EM, nucleosynthesis, EoS

Contribution ID: 29

Type: **not specified**

Strong magnetic field inside degenerate relativistic plasma and its impacts on the neutrino transport in Core-Collapse Supernovae

Monday, 1 April 2024 10:10 (40 minutes)

Presenter: LUO, Yudong (Peking University)

Session Classification: EM, nucleosynthesis, EoS

Contribution ID: 30

Type: **not specified**

Evolution of pulsars and its interior equation of state

Monday, 1 April 2024 11:05 (40 minutes)

Presenter: ZHOU, Xia (Xinjiang Astronomical Observatory)

Session Classification: EM, nucleosynthesis, EoS

Contribution ID: 31

Type: **not specified**

Unified nuclear matter EOSs in RMF models

Monday, 1 April 2024 11:45 (40 minutes)

Presenter: XIA, Cheng-Jun (Yangzhou University)

Session Classification: EM, nucleosynthesis, EoS

Contribution ID: 32

Type: **not specified**

Quark Matter and Hybrid Stars

Monday, 1 April 2024 14:00 (40 minutes)

Presenter: CHEN, Huan (China University of Geosciences)

Session Classification: EM, nucleosynthesis, EoS

Contribution ID: 33

Type: **not specified**

Inverse engineering the TOV equation –analytical results and the application in deep learning

Monday, 1 April 2024 14:40 (40 minutes)

Presenter: SHI, Shuzhe (Tsinghua University)

Session Classification: EM, nucleosynthesis, EoS

Contribution ID: 34

Type: **not specified**

From Rutherford's Nucleus to Landau's Gigantic Nucleus

Tuesday, 2 April 2024 09:30 (40 minutes)

Presenter: XU, Renxin (Peking University)

Session Classification: EoS, CCSNe, MMA

Contribution ID: 35

Type: **not specified**

Bayesian inference of RMF model for neutron star matter from multi-messenger observation

Tuesday, 2 April 2024 10:10 (40 minutes)

Presenter: LI, Ang (Xiamen University)

Session Classification: EoS, CCSNe, MMA

Contribution ID: 36

Type: **not specified**

Alternatives to conventional hybrid star

Tuesday, 2 April 2024 11:05 (40 minutes)

Presenter: ZHANG, Chen (Hong Kong University of Science and Technology)

Session Classification: EoS, CCSNe, MMA

Contribution ID: 37

Type: **not specified**

Compact star models in the light of new multi-messenger data

Tuesday, 2 April 2024 11:45 (40 minutes)

Presenter: LI, Jia-Jie (Southwest University)

Session Classification: EoS, CCSNe, MMA

Contribution ID: 38

Type: **not specified**

Core-collapse supernova in relation to nuclear physics

Tuesday, 2 April 2024 14:00 (40 minutes)

Presenter: ZHA, Shuai (Yunnan Observatories)

Session Classification: EoS, CCSNe, MMA

Contribution ID: 39

Type: **not specified**

Hadron-quark phase transition in core-collapse supernovae

Tuesday, 2 April 2024 14:40 (40 minutes)

Presenter: HUANG, Xurun (The Chinese University of Hong Kong)

Session Classification: EoS, CCSNe, MMA

Contribution ID: 40

Type: **not specified**

Dense QCD matter under magnetic field and rotation

Saturday, 30 March 2024 10:10 (40 minutes)

Presenter: HOU, Defu (Central China Normal University)

Session Classification: QCD, GWs, neutrinos

Contribution ID: 41

Type: **not specified**

GW Signatures of Dynamical Tides: Most Massive Neutron Stars vs Lightest Astrophysical Black Holes

Wednesday, 3 April 2024 10:10 (40 minutes)

Presenter: PAN, Zhen (TDLI)

Session Classification: GWs, BNS, kilonova

Contribution ID: 42

Type: **not specified**

Resonant tidal excitation in merging binary neutron stars as a probe of hadron-quark phase transition

Wednesday, 3 April 2024 09:30 (40 minutes)

Presenter: MIAO, Zhiqiang (TDLI)

Session Classification: GWs, BNS, kilonova

Contribution ID: 43

Type: **not specified**

Short Introduction

Session Classification: NSs, nucleosynthesis, MMA

Contribution ID: 44

Type: **not specified**

Pion-mediated Cooper pairing of neutrons: beyond the bare vertex approximation

Sunday, 31 March 2024 15:35 (20 minutes)

Presenter: ZHU, Hao-Fu (University of Science and Technology of China)

Session Classification: Students' session - 14' + 4'

Contribution ID: 45

Type: **not specified**

Universal Love-C relation for hybrid stars with crystalline quark core

Sunday, 31 March 2024 15:55 (20 minutes)

Presenter: DONG, Zhiyuan (Central China Normal University)

Session Classification: Students' session - 14' + 4'

Contribution ID: 46

Type: **not specified**

Multi-messenger signatures of accretion-induced collapse

Sunday, 31 March 2024 16:15 (20 minutes)

Presenter: YIP, Chun-Ming (The Chinese University of Hong Kong)

Session Classification: Students' session - 14' + 4'