Research in Astronomy and Astrophysics (2021-2022)

CONTENTS


The composite X-ray spectra of radio-loud and radio-quiet SDSS quasars
Min-Hua Zhou and Min-Feng Gu ........................................... 4

Spatially-resolved stellar population properties of the M51–NGC 5195 system from multi-wavelength photometric data
Peng Wei, Hu Zou, Lin Lin, Xu Zhou, Xiang Liu, Xu Kong, Lu Ma and Shu-Guo Ma ................. 6

An explanation for 13 consecutive day activities of Mrk 421
Yong-Gang Zheng, Chu-Yuan Yang, Shi-Ju Kang and Jin-Ming Bai ........................................... 8

Searching for AGN and pulsar candidates in 4FGL unassociated sources using machine learning
Ke-Rui Zhu, Shi-Ju Kang and Yong-Gang Zheng .................................................. 15

GeneticKNN: a weighted KNN approach supported by genetic algorithm for photometric redshift estimation of quasars
Bo Han, Li-Na Qiao, Jing-Lin Chen, Xian-Da Zhang, Yan-Xia Zhang and Yong-Heng Zhao ......... 17

The conformity of HI galaxies in ALFALFA-SDSS sample
Lin-Cheng Li, Bo Qin, Jie Wang, Jing Wang and You-Gang Wang ........................................... 32

Interacting system NGC 7805/6 (Arp 112) and its tidal dwarf galaxy candidate
Zhen-Xing Fu, Chandreyee Sengupta, Ramya Sethuram et al. ................................................ 43

Research on magnetic fields of galaxies using RZ-model
Evgeny Alexandrovich Mikhailov and Vasiliy Vladimirovich Pushkarev .................................. 56

A broad absorption line outflow associated with the broad emission line region in the quasar SDSS J075133.35+134548.3
Bo Liu, Hong-Yan Zhou, Xin-Wen Shu, Shao-Hua Zhang, Tao Ji et al. ................................. 65

Possible properties of TeV spectra in PKS 2155–304
Quan-Gui Gao, Fang-Wu Lu, Long-Hua Qin, Huai-Zhen Li, Ju Ma et al. ...................................... 73

Detection of a high-confidence quasi-periodic oscillation in radio light curve of the high redshift FSRQ PKS J0805–0111
Guo-Wei Ren, Hao-Jing Zhang, Xiong Zhang, Nan Ding, Xing Yang et al. ............................... 75

FUV and NIR size of the HI selected low surface brightness galaxies
Cheng Cheng, Wei Du, Cong Kevin Xu, Tian-Wen Cao, Hong-Xin Zhang et al. ......................... 76

The Mg ii absorption line systems in quasar spectra from the Large Sky Area Multi-Object Fiber Spectroscopic Telescope
Zhi-Fu Chen, Huan-Chang Qin, Yan-Chun Gao et al. .......................................................... 83

Resolving the inner jet of PKS 1749+096 with super-resolution VLBA images at 7 mm
Lang Cui, Ru-Sen Lu, Wei Yu, Jun Liu, Victor M. Patiño-Álvarez and Qi Yuan ......................... 91

Searching for the brightest stars in galaxies outside the Local Group
Tikhonov Nikolay, Galazutdinova Olga, Sholukhova Olga et al. ............................................ 98

The feasibility and flexibility of selecting quasars by variability using ensemble machine learning algorithms
Da-Ming Yang, Zhang-Liang Xie and Jun-Xian Wang .............................................................. 99

Optical monitoring and IDV analysis of the blazars S5 0716+714 and 3C 273
Xiao-Lan Liu, Yu-Hai Yuan and Hong-Ren Huang ............................................................. 102

An explanation about the flat radio spectrum for Mrk 421
Rui Xue and Ze-Rui Wang .......................................................... 103

The HI gas and star formation in star-forming galaxies selected from ALFALFA
Feng-Jie Lei, Hong Wu, Yi-Nan Zhu, Man I. Lam and Zhi-Min Zhou ..................................... 123

Optical monitoring and intra-day variabilities of BL Lac Objects OJ 287
Yu-Hai Yuan, Jun-Hui Fan, Hong Wu, Jing-Meng Hao, Wei-Rong Huang et al. ......................... 138

Stellar dynamical modeling - accuracy of 3D density estimation for edge-on axisymmetric galaxies
Richard J. Long, Sheng-Dong Lu and Dan-Dan Xu ................................................................. 152
Exploring the characteristics of the flare from PMN J0218–2307 by Fermi-LAT
Yun-Chuan Xiang, Yu-Liang Xin and Min Yuan ............................................. 155
The likely counterpart to γ-ray excess from the northwest region of Arp 220
Yun-Chuan Xiang, Jun-Hao Deng and Ze-Jun Jiang ..................................... 172
Long-term multi-wavelength variations of Fermi blazar 3C 279
Bing-Kai Zhang, Min Jin, Xiao-Yun Zhao, Li Zhang and Ben-Zhong Dai ........ 186
The intra-day optical monitoring of BL Lacerate object 1ES1218+304 at its highest X-ray flux level
Si-Si Sun, Hua-Li Li, Xing Yang, Jing Li, Da-Wei Xu and Jing Wang ............ 197
Empirical formulae to describe some physical properties of small groups of protogalaxies with multiplicity
Guillermo Arreaga-García ................................................................................. 198
X-ray spectral evolution in an X-ray changing-look AGN NGC 1365 with variable column density
Hao Liu, Qing-Wen Wu, Yong-Quan Xue, Ting-Gui Wang, Jun Yang et al. .... 199
Highly variable γ-ray emission of CTD 135 and implications for its compact symmetric structure
Ying-Ying Gan, Hai-Ming Zhang, Jin Zhang, Xing Yang, Ting-Feng Yi et al. .... 201
Radial stellar populations of AGN-host dwarf galaxies in SDSS-IV MaNGA survey
Wei Cai, Ying-He Zhao and Jin-Ming Bai ......................................................... 204
East Asian VLBI Network observations of active galactic nuclei jets: imaging with KaVA+Tianma+Nanshan
Yu-Zhu Cui, Kazuhiro Hada, Motoki Kino, Bong-Won Sohn, Jongho Park et al. 205
The role of mergers and gas accretion in black hole growth and galaxy evolution
Tian-Chi Zhang, Qi Guo, Yan Qu and Liang Gao ............................................ 212
The formation and evolution of massive galaxies
Ying-Jie Jing, Yu Rong, Jie Wang, Qi Guo and Liang Gao ............................. 218
Variations of broad emission lines from periodicity QSOs under the interpretation of supermassive binary black holes with misaligned circumbinary broad line regions
Xiang Ji, Jun-Qiang Ge, You-Jun Lu and Chang-Shuo Yan ......................... 219
Intra-day variability of BL Lacertae from 2016 to 2018
Tian Li, Jiang-Hua Wu, Nan-Kun Meng, Yan Dai and Xiao-Yuan Zhang .... 259
Spectral energy distribution similarity of the local galaxies and the 3.6 µm selected galaxies from the Spitzer Extended Deep Survey
Cheng Cheng, Jia-Sheng Huang, Hai Xu, Gao-Xiang Jin, Chuan He et al. ........ 260
New constraint of the Hubble constant by proper motions of radio components observed in AGN twin-jets
Wei-Jian Lu and Yi-Ping Qin ........................................................................... 261
Evaluation of hadronic emission in starburst galaxies and star-forming galaxies
Yun-Chuan Xiang, Ze-Jun Jiang and Yun-Yong Tang .................................... 263
Automated classification technique for edge-on galaxies based on mathematical treatment of brightness data
Mohamed Eassa, Ibrahim Mohamed Selim, Walid Dabour and Passent Elkafrawy 264
X-ray source population in the polar ring galaxy NGC 660 as observed by Chandra
Nurnabilah Nazri and Adlyka Annuar .............................................................. 289
Constraining evolution of magnetic field strength in the dissipation region of two BL Lac objects
Xu-Liang Fan, Da-Hai Yan, Qing-Wen Wu and Xu Chen ................................. 302
Hadronuclear interpretation of the possible neutrino emission from PKS B1424-418, GB6 J1040+0617 and PKS 1502+106
Ze-Rui Wang and Rui Xue .............................................................................. 305
Spatially resolved properties of supernova host galaxies in SDSS-IV MaNGA
Hong-Xuan Zhang, Yan-Mei Chen, Yong Shi, Min Bao and Xiao-Ling Yu .... 306

AGN Lifetimes in UV-selected Galaxies: A Clue to Supermassive Black Holegalaxy Coevolution
Xiaozhi Lin, Yongquan Xue, Guanwen Fang, Lulu Fan, Huynh Anh N Le and Ashraf Ayubinia 015010

The Variability of the Narrow-line Seyfert 1 Galaxies from the Pan-STARRS’s View
Hong-Tao Wang, Yan-Ping Su, Xue Ge, Yong-Yun Chen and Xiao-Ling Yu 015014

Identifications of RR Lyrae Stars and Quasars from the Simulated Data of Mephisto-W Survey
Lei Lei, Bing-Qiu Chen, Jin-Da Li, Jin-Tai Wu, Si-Yi Jiang and Xiao-Wei Liu 025004

Systematic Errors Induced by the Elliptical Power-law model in Galaxy-Galaxy Strong Lens Modeling
Xiaoyue Cao, Ran Li, J. W. Nightingale, Richard Massey, Andrew Robertson et al. 025014

The Origin of The Soft X-Ray Excess in the Seyfert 1.5 Galaxy ESO 362-G18
Xiao-Gu Zhong and Jian-Cheng Wang 035002

Is TOL 1326 – 379 a Prototype of γ-Ray Emitting FR0 Radio Galaxy?
Wen-Jing Fu, Hai-Ming Zhang, Jin Zhang, Yun-Feng Liang, Su Yao and En-Wei Liang 035005

Application of a Space-based Optical Interferometer Toward Measuring Cosmological Distances of Quasars
Ying-Ke Huang, Yue-Dong Fang, Kai-Xing Lu, Zhi-Xiang Yang, Ji-Lin Liu et al. 045005

Explaining the Multiwavelength Emission of Hard-TeV BL Lac Objects Using a Truncated Conical Jet Model
Maichang Lei, Yuan Zheng, Jianfu Zhang and Jiancheng Wang 045008

SDSS J1042-0018: a Broad Line AGN but Misclassified as an HII Galaxy in the BPT Diagram by Flux Ratios of Narrow Emission Lines
Yi Cao, Si-Dan Zhao, Xing-Yu Zhu, Hai-Chao Yu, Yi-Wei Wang and Xue-Guang Zhang 045010

Classifying Galaxy Morphologies with Few-shot Learning
Zhurui Zhang, Zhiqiang Zou, Nan Li and Yanli Chen 055002

A New X-Ray Tidal Disruption Event Candidate with Fast Variability
J. Hampel, S. Komossa, J. Greiner, T. H. Reiprich, M. Freyberg and T. Erben 055004

Photometric Redshifts and Galaxy Clusters for DES DR2, DESI DR9, and HSC-SSP PDR3 Data
Hu Zou, Jipeng Sui, Suijian Xue, Xu Zhou, Jun Ma et al. 065001

Galaxy Spectra Neural Networks (GaSNets). I. Searching for Strong Lens Candidates in eBOSS Spectra Using Deep Learning
Fucheng Zhong, Rui Li and Nicola R. Napolitano 065014

106 New Emission-line Galaxies and 29 New Galactic HII Regions are Identified with Spectra in the Unknown Data Set of LAMOST DR7
Yan Lu, A-Li Luo, Li-Li Wang, You-Fen Wang, Yin-Bi Li et al. 065015

The Multiple Images of the Plasma Lensing FRB
Yu-Bin Wang, Zhi-Gang Wen, Nan Guo, Na Wang, Jian-Ping Yuan and Xia Zhou 065017

Extragalactic HI Survey with FAST: First Look at the Pilot Survey Results
Jiangang Kang, Ming Zhu, Wei Ai, Xing-Li Wang and Xue-Sheng Zhang 065019

Multicolor Optical Monitoring of the γ-Ray Emitting Narrow-line Seyfert 1 Galaxy PMN J0948+0022 from 2020 to 2021
Yi-Xin Xin, Ding-Rong Xiong, Jin-Ming Bai, Hong-Tao Liu, Kai-Xing Lu and Ji-Rong Mao 075001

Correlation between Brightness Variability and Spectral Index Variability for Fermi Blazars
Wein-Xing Yang, Hu-Bing Xiao, Hong-Guang Wang, Jiang-He Yang, Zhi-Yuan Pei et al. 085002

HI Vertical Structure of Nearby Edge-on Galaxies from CHANG-ES
Yun Zheng, Jing Wang, Judith Irwin, Q. Daniel Wang, Jiatao Li et al. 085004

Identifying Outliers in Astronomical Images with Unsupervised Machine Learning
Yang Han, Zhiqiang Zou, Nan Li and Yanli Chen 085006
Predicting Supermassive Black Hole Mass with Machine Learning Methods
Yi He, Qi Guo and Shi Shao .................................................. 085014

About 300 days Optical Quasi-periodic Oscillations in the Long-term Light Curves of the Blazar PKS2155–304
Qi Zheng, Xue-Guang Zhang and Qi-Rong Yuan .................................................. 085024

Jet Formation Mechanism of the Gamma-Ray-emitting Narrow-line Seyfert 1 Galaxies
Yongyun Chen, Qiusheng Gu, Junhui Fan, Xiaoling Yu, Dingrong Xiong et al. ................. 095006

Mapping H I in the NGC 4636 Galaxy Group with FAST
Pei Zuo, Dong Yang, Jing Wang, Lister Staveley-Smith, Xuchen Lin et al. ...................... 095016

The Quasar Candidate Catalogs of DESI Legacy Imaging Survey Data Release 9
Zizhao He and Nan Li ................................................................. 095021

Evolution of Galaxy Types and HI Gas in Hickson Compact Groups
Yao Liu and Ming Zhu ............................................................... 105018

Evidence of Quasi-periodic Oscillation in the Optical Band of the Blazar 1ES 1959+650
Fu-Tong Dong, Ning Gai, Yanke Tang, Yi-Fan Wang and Ting-Feng Yi ......................... 115001

Unveiling the Nature of Polar-ring Galaxies from Deep Imaging
Aleksandr V. Mosenkov, Vladimir P. Reshetnikov, Maria N. Skryabina and Zacory Shakespear 115003

A Lightweight Deep Learning Framework for Galaxy Morphology Classification
Donglin Wu, Jinqu Zhang, Xiangru Li and Hui Li .............................................. 115011

The Halo Concentration and Mass Relation Traced by Satellite Galaxies
Qing Gu, Qi Guo, Tianchi Zhang, Wenting Wang, Quan Guo and Liang Gao ................. 125015

A Possible 250 s X-Ray Quasi-periodicity in the Fast Blue Optical Transient AT2018cow
Wenjie Zhang, Xinwen Shu, Jin-Hong Chen, Luming Sun, Rong-Feng Shen et al. .......... 125016