



POLGRA



Sudhagar Suyamprakasam †

2nd year in GeoPlanet Doctoral School

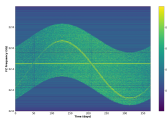
Advisor: Dr. hab. Michał Bejger †, *

† Nicolaus Copernicus Astronomical Center
Polish Academy of Sciences
Warszawa - Poland

* Istituto Nazionale di Fisica Nucleare, Ferrara, Italy

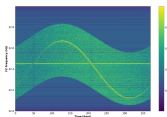
CAMK Annual Conference
31st January, 2024

Research Projects



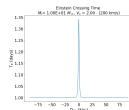
NS-Dual
Harmonics^[α]

Research Projects



NS-Dual
Harmonics^[α]

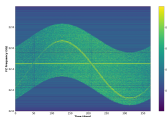
Research Projects



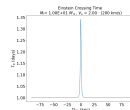
CGW-
Gravitational
Lensing^[α, β]

α : CAMK- Michał Bejger, Paweł Ciecieląg, Przemysław Figura

β : NCBJ - Adam Zdrożny, Marek Biesiada, Orest Dorosh, Sreekanth Harikumar

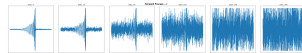


NS-Dual
Harmonics $[\alpha]$



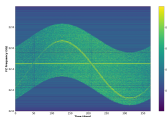
CGW-
Gravitational
Lensing $[\alpha, \beta]$

DDPM $[\alpha]$



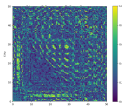
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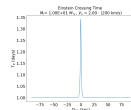


NS-Dual
Harmonics $[\alpha]$

Noise
Couplings $[\gamma]$

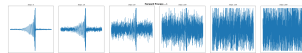


Research Projects



CGW-
Gravitational
Lensing $[\alpha, \beta]$

DDPM $[\alpha]$



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β : NCBJ - Adam Zdrożny, Marek Biesiada, Orest Dorosh, Sreekanth Harikumar

γ : WSU, Pullman - Brice Williams, Sukanta Bose

LVK Collaboration

- **PyBicoh**: Key developer.

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- Contributed to **Fscan**^[**] and **SiGMa-Net**^[δ ,1] data analysis software.

**: <https://pypi.org/project/fscan/>

δ : Anupreeta More (IUCAA), Prasia Pankunni (IUCAA), Soorya Narayan (IISER, Pune) Sukanta Bose (WSU, Pullman), Sunil Choudhary (UWA, Perth)

Ref 1: Deep learning network to distinguish binary black hole signals from short-duration noise transients.
<https://doi.org/10.1103/PhysRevD.107.024030>, [ArXiv:2202.08671](https://arxiv.org/abs/2202.08671)

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- Event Validation (EV) and Data Quality (DQ) Shifts ^[2,3]

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Ref 2: LIGO detector characterization in the second and third observing runs.

<https://iopscience.iop.org/article/10.1088/1361-6382/abfd85>, [ArXiv:2101.11673](https://arxiv.org/abs/2101.11673)

Ref 3: Virgo detector characterization and data quality: results from the O3 run:

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Thank you for your time !

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