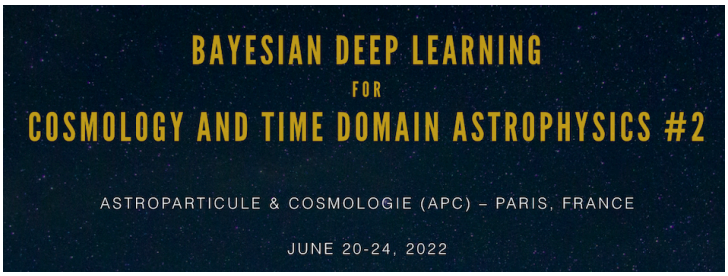

ID de Contribution: **82** Code de contribution: **poster_s1_4** Type: **Poster + lightning talk**

Deep Learning Techniques for Time Series Analysis in the context of Gravitational Waves Detection

Here we present the results of our tests involving different Deep Learning (DL) algorithms in order to detect Gravitational waves (GW) in time-domain data from Massive Black Hole Binaries (MBHB) mergers. We selected three different neural networks (Shallow Multilayer Perceptron, Deep Multilayer Perceptron and a Deep Convolutional Neural Network) which are trained with simulated GW signals and noise produced in-house. The dataset consists of GW signals with the component masses ratios (q) in the range of 1-1501, GW signals injected into Gaussian Noise in the same ratio range and Gaussian Noise. The whole dataset is split into 5 classes as follows: A (q = 1-300), B (q = 301-749), C (q = 750-1200), D (q = 1201-1501) and the fifth class representing just noise (N). The results have direct implications to future ground like Einstein Telescope or space-based GW observatories such as LISA.

Auteur principal: M. BASCEANU, Vlad-Andrei (Institute of Space Science, Romania)

Co-auteurs: Dr CARAMETE, Laurentiu-Ioan (Institute of Space Science, Romania); Dr CARAMETE, Ana (Institute of Space Science, Romani); Dr FELEA, Daniel (Insitute of Space Science, Romania)

Orateurs: M. BASCEANU, Vlad-Andrei (Institute of Space Science, Romania); Dr CARAMETE, Laurentiu-Ioan (Institute of Space Science, Romania)

Classification de Session: Lightning talks

Classification de thématique: Time Domain Astrophysics