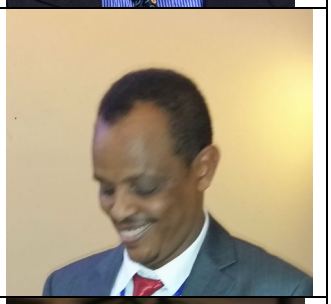
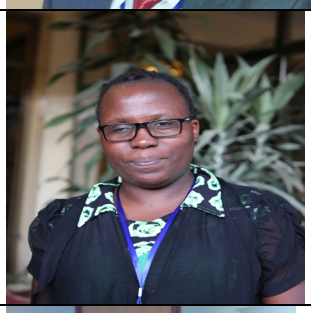
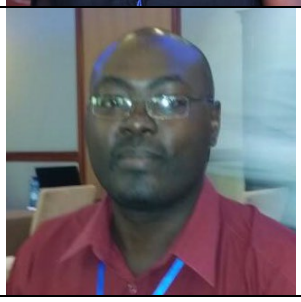
PROGRAMME FOR EAARN PRESENTATIONS

S.No	Presenter	Title	Time required (Minutes)	Photograph of the Presenter
01	Simon K. Anguma	An Overview of the East Africa Astronomical Research Netwrok (EAARN)	20	
02	Solomon Tessema Belay	Astronomy and Astrophysics Research in Ethiopia	20	
03	Beatrice Nyirasengiyumva	Properties of Green Valley Galaxies at Redshift of $z < 0.1$ in Relation to their Selection Criteria	30	
04	Isaac Habumugisha	On the structure of quasi-Keplerian accretion discs surrounding millisecond X-ray pulsars	30	

Title
An Overview of the East Africa Astronomical Research Netwrok (EAARN)

By
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Abstract
The East African Research Network was established in 2014 combining founding members from the Eastern African countries of Uganda, Rwanda, and Ethiopia. The main purpose for forming the network was to bring the very few east African astrophysicists together. Furthermore, to build a critical mass of astrophysicists by training students and graduate level in the east African region. Three training nodes were then established as follows: Mbarara University of Science and Technology for training at both Masters and PhD levels; University of Rwanda in Rwanda to train at PhD level and University of Addis Ababa for PhD training. So far, through the Network, we were able to enroll a total of 26 students for graduate studies. 46% have successfully graduated form their studies while 11.5% dropped off from their studies due to various reasons, and the remaining 42.5% are at various stages of completing their studies. The graduates supported through the EAARN project are getting employed in both public and private universities in Uganda and this will positively impact on popularizing astrophysics in the East African region.

Astronomy and Astrophysics Research in Ethiopia

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Abstract: In this paper we address the main astronomy and astrophysics research developments in the past years and current research going on in Ethiopia. The study present focuses research areas such as theoretical and computational astrophysics, stellar astrophysics, extragalactic astrophysics, cosmology, and solar astrophysics in Ethiopia. The international collaboration, graduate program, publications, contribution of International Science Program (ISP) and other international research organizations will be addressed. Finally, future strategies of astronomy and astrophysics research program, human capital program training and projects are addressed.

Key words: astronomy and astrophysics, research, graduate program

Title:

Properties of Green Valley Galaxies at Redshift of z < 0.1 in Relation to their Selection Criteria

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Abstract

The bi-modality in the distribution of galaxies usually obtained from colour-colour or colour-mass diagrams has been studied to show the difference between the "blue cloud" and "red sequence" galaxies and define the green valley region. As a transitional region, galaxies in it are expected to give clues in understanding of morphological and evolutional transformation of galaxies from late-types to early-types. In this research, we study how different green valley selection criteria used in previous works affect the final results and conclusions. Using optical (SDSS DR7) and ultraviolet (GALEX-AIS GR5) data, we analyse the distribution of stellar mass, SFR and sSFR; classify galaxies spectroscopically and morphologically in different green valley samples. The main findings are that, when using different criteria we select different galaxies in terms of their stellar mass, where more massive galaxies are selected when using UV data. When observing the total samples of green valley galaxies, the SFR and sSFR are higher in optically selected green valley galaxies than in UV selected samples. With spectroscopic types, more star forming galaxies are selected in optical samples while composites and AGNs are selected more in UV samples. A morphological analysis suggests that, with optical colour we obtain many more spirals than ellipticals but for UV colour criterion, we have more ellipticals than spirals. We conclude that by selecting the green valley galaxies based on UV or optical data, we obtain different types of galaxies in terms of their stellar.

masses, luminosities, SFRs, morphological and spectroscopic classes.

Title:

On the structure of quasi-Keplerian accretion discs surrounding millisecond X-ray pulsars

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Abstract.
In this study, we investigated the time-independent dynamics (disc structure, forces and torques) of a quasi-Keplerian disc around a millisecond pulsar (MSP) with an internal dynamo. We considered the disc around a MSP to be divided into the inner, middle and outer regions. By assuming that the disc matter flows in a quasi-Keplerian motion, we derived analytical equations for a complete structure (temperature, pressure, surface density, optical depth and magnetic field) of a quasi-Keplerian thin accretion disc, and the pressure gradient force (PGF). In our model, the MSP-disc interaction results into magnetic and material torques, such that for a given dynamo (ε) and quasi-Keplerian (ξ) parameter, we obtained enhanced spin-up and spin-down torques for a chosen star spin period. Results obtained reveal that PGF results into episodic torque reversals that contribute to spinning-up or spinning-down of a neutron star, mainly from the inner region. The possibility of a quasi-Keplerian disc is seen and these results can explain the observed spin variations in MSPs like SAX J1808.4-3658 and XTE J1814-338.

Keywords. 97.80.Jp X-ray binaries—97.60.Gb pulsars—97.10.Gz accretion and accretion discs.