

Earning Doctorate After Researching Nonlinear Characteristic on Fiber Optic

Monday, 05 February 2018 WIB, By: Teguh



A lecturer from Department of Electrical Engineering, Faculty of Engineering, Universitas Brawijaya, Fakhriy Hario P. succeeded to earn doctorate from Electrical Engineering, Faculty of Engineering UGM after defending his dissertation during an open examination for Doctoral Programme which was held on Wednesday (31/1) at the faculty.

In his dissertation entitled Mitigation of Nonlinear Characteristic on Fiber Optic in RoF (Radio over Fiber) Networks, promovendus said RoF technology can integrate the utilization of high-level modulation method owned by OFDM (Orthogonal Frequency Division Multiplexing) as a data source with medium fiber optic which is functioned as a backhaul for long distance transmission at high-level data use. However, in the utilization of fiber optic, according to Fakhriy, light propagation becomes one of the main problems in meeting the requirements of multimedia-based communication sector. "One of the main problems caused by the characteristics of light propagation in fiber optic network is a nonlinear effect.

Fakhriy conducted research to stimulate the system to be more resistant to nonlinear effect which can reduce the output power based on dithering frequency technique, external modulator and existing components addition. "The system which is designed to be resistant toward nonlinear effect during the signal transmission through fiber optic medium with a high power input," said Fakhriy.



The result of his research showed dither frequency will have an effective role if it is supported by the signal control in the modulator. The utilization of dithering frequency is correlated with the value of the information's frequency. Fiber optic is recommended to be used to maintain the data's quality than the number of transmitted data. Overall, this concept is more recommended for bit rate system, high index modulation, and long-distance communication using fiber optic. "The result of this research can press the number of the utilization of strengthening pump, thus the system will become more economic for long-distance transmission," he added. (Humas UGM/Fiki)

Related News

- [Observing Runoff Model in Urban Areas for Doctorate](#)
- [Earning Doctorate After Researching Rainfall and Runoff Erosive Index](#)
- [Gaining Doctorate after Researching Natural Fiber Craft Industry of Yogyakarta](#)
- [Earning Doctorate After Researching Mining Impact on Groundwater Quality](#)
- [Center for Communication and Information Technology Services \(CCITS\)](#)