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Experimental highlights and challenges in Advanced LIGO KI-WAMU IZUMI, LIGO Hanford Observatory — In the past years, the advanced LIGO project made a significant amount of progress. Recently, both of the laser interferometers successfully achieved full resonance and demonstrated stable operation for more than two hours. The project is now preparing for observation runs by reducing various noises and improving the duty cycle. Since the aLIGO interferometer employs a large number of active control systems and a complicated interferometric configuration, the process of optimizing the control loops and reducing noise coupling/sources is not always straightforward. In fact, this is the point where most of the experimental challenges lie. In this talk, I will present some of the challenges

and how we are addressing them.

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