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# Pulse Injection for Real-Time Monitoring of Tunable High-Q Filters

**A cost-effective measurement technique uses off-the-shelf electronics to provide real-time, binary digital frequency monitoring for high-Q microwave tunable filters without disrupting main cavity operation.**

Monitoring the frequency of high-Q microwave tunable filters is essential to solving frequency stability issues in modern tunable cavity filters. Currently, cavity filters are tuned using equipment, such as network analyzers, or monitoring other operating modes in the cavity. However, the frequency stability of the filters is an issue in modern tunable cavity filters.

Researchers at Purdue University have developed a new measurement technique for monitoring the frequency of high-Q microwave tunable filters in real time. The technique provides the operating frequency information in a binary digital format, making it easy to read and process. It can be fully implemented using off-the-shelf electronics, making it relatively inexpensive. It can provide the frequency information without affecting the main cavity operation.

**Advantages**:

-Relatively easy to read and process

-Provides frequency information without affecting the main cavity operation

-Cost effective alternative

Potential Applications:

-Electronics manufacturers

**TRL:** 4

**Intellectual Property:**

**Technology ID**
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**Category**
Semiconductors/Devices & Components

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