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## **IEEE NPSS PAST Early Career Award Talk: attosecond x-ray free-electron lasers: accelerator physics and x-ray science at extreme timescales**

*Thursday, 23 May 2024 14:40 (15 minutes)*

Attosecond x-ray free-electron lasers (XFEL) are the brightest source of isolated sub-fs pulses, with a peak brightness that surpasses table-top high-harmonic generation sources by seven orders of magnitude. In my talk I will discuss the development of attosecond x-ray science capabilities at the Linac Coherent Light Source: from the first demonstration of isolated attosecond pulses to the observation of electronic dynamics with pump/probe experiments. Finally, I will discuss the future of attosecond XFELs and the unique opportunities enabled by the high-repetition rate LCLS-II upgrade and advanced plasma-based electron sources.

### **Footnotes**

### **Funding Agency**

### **Paper preparation format**

### **Region represented**

**Presenter:** MARINELLI, Agostino (SLAC National Accelerator Laboratory)

**Session Classification:** Louis Costrell Awards Session