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## Present Limits and Future Prospects for Dielectric Acceleration

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With the potential to reach high gradient with unrivaled compactness, acceleration using dielectric structures is an area of active research. Dielectrics offer an order-of-magnitude improvement in damage resistance to short pulses of radiation compared to metals, and exhibit lower loss at optical and terahertz frequencies. Dielectrics have demonstrated the ability to withstand broadband short-pulse radiation fields in excess of 10 GV/m. Developing suitable accelerator structures that combine these strengths to efficiently accelerate particles is the next step.

We will briefly survey the concepts that have been proposed for dielectric accelerators, and focus on two areas that have received particular attention recently: beam-driven dielectric wakefield accelerators and laser-driven dielectric structure based concepts. Key issues impacting the application of these technologies to a High Energy Physics accelerator will be discussed. The R&D needed to move these ideas from concept to reality will be discussed.

**Primary author:** Dr COLBY, Eric R. (SLAC)

**Presenter:** Dr COLBY, Eric R. (SLAC)

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