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Abstract for an Invited Paper
for the TSF21 Meeting of
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The Future of Physics is in Texas! From Astrophysics to FLASH-RT!

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This talk will cover the advancements in multiple aspects of Physics being investigated in institutions and labs throughout Texas. The bulk of the lecture will focus on the field of Medical Physics in particular. Medical Physics is a specialty utilized to detect and treat malignancies as well as study the impact of radiation with matter. A major new development in Medical Physics and Radiation therapy happens to be FLASH ultra-high dose radiotherapy. FLASH is a technique of radiotherapy that requires at least 40 Gy/sec radiation beam delivery and has an unusual effect seen in several endpoints of causing less lethality in normal tissues compared to conventional radiotherapy delivered in .01 Gy/sec. This offers the Radiation therapy community a unique new tool to improve our therapeutic window and potentially offer better outcomes for our cancer patients. By the end of the lecture, the participant should be familiar with the powerhouses of our Physics research community in Texas from several different domains.