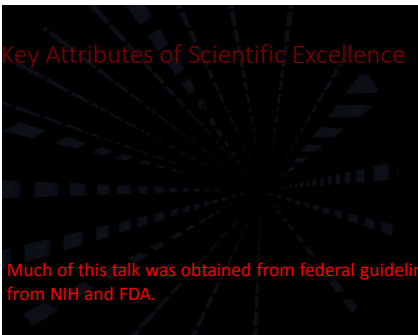
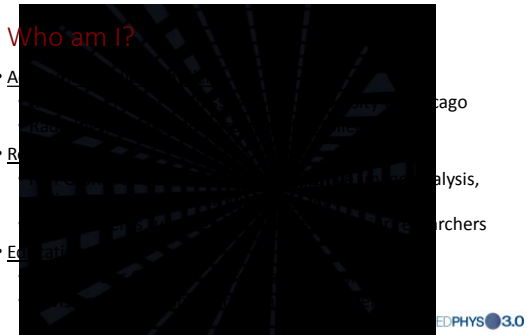


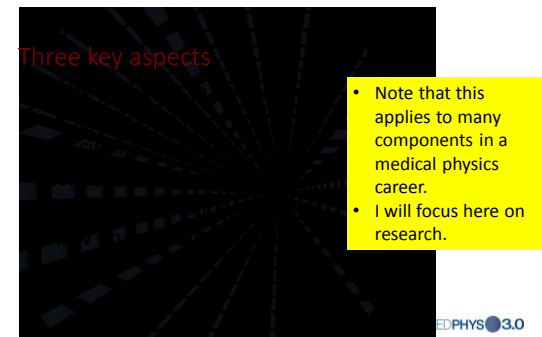
- Give an example of how you can personalize, and reinvigorate the role of physics in modern medicine by growing and practicing scientific approaches in quantification.
- Motivate and encourage physicists to take a data-driven, evidence-based care.
- Understand how physicists can practice scientific rigor and innovation in their developmental work.



Much of this talk was obtained from federal guidelines, e.g., from NIH and FDA.



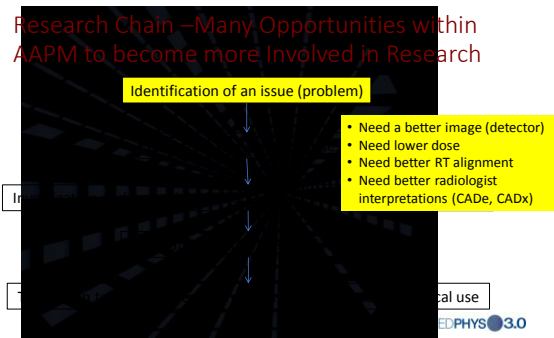




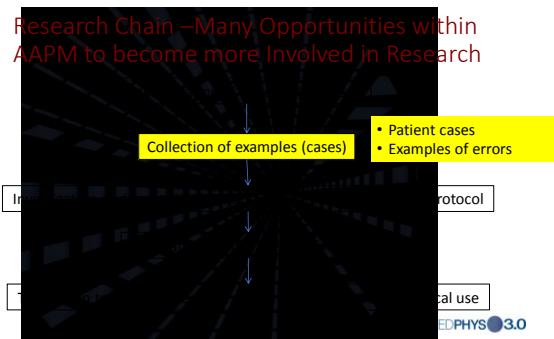
Research Chain – Many Opportunities within AAPM to become more Involved in Research



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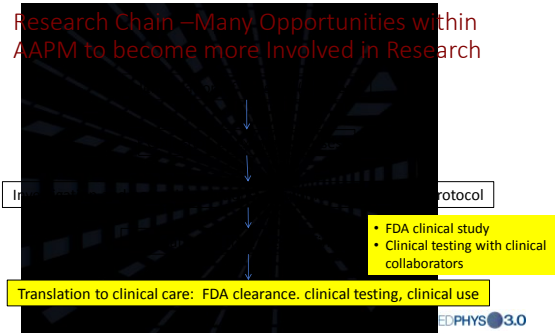
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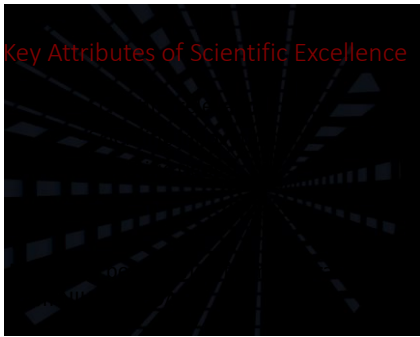


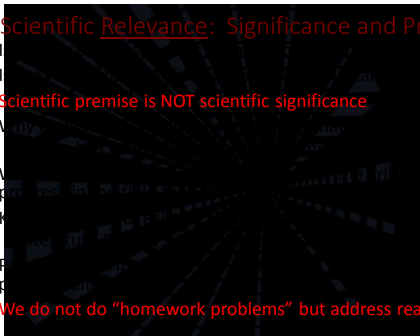
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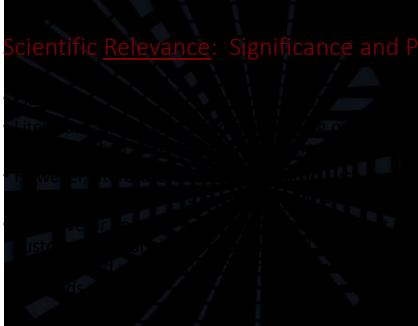


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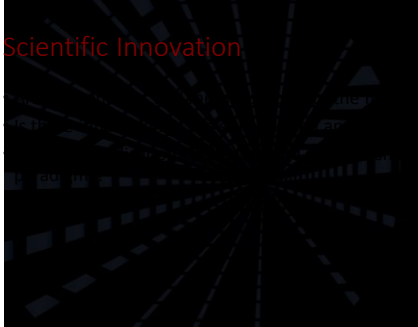
Scientific Relevance: Significance and Premise



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Scientific Innovation



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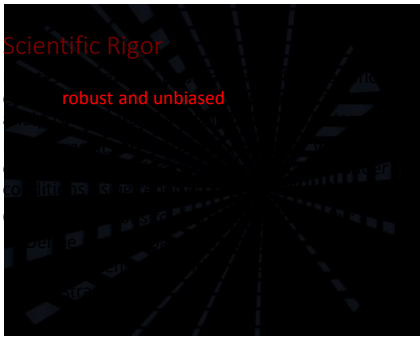
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Scientific Rigor

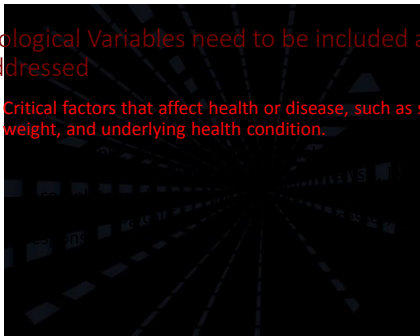
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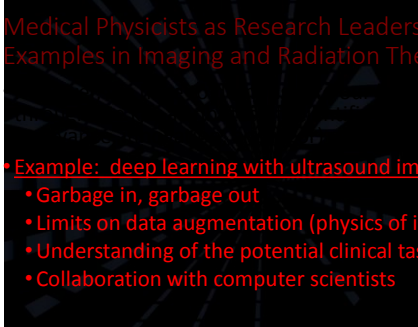
Medical Physicists as Research Leaders:
Examples in Imaging and Radiation Therapy



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Medical Physicists as Research Leaders:
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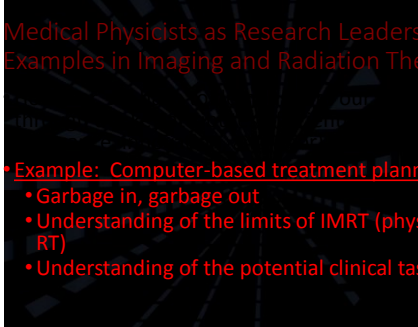


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- Example: deep learning with ultrasound images
 - Garbage in, garbage out
 - Limits on data augmentation (physics of imaging)
 - Understanding of the potential clinical tasks
 - Collaboration with computer scientists

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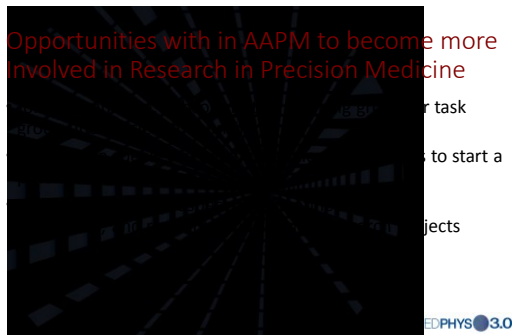
Medical Physicists as Research Leaders:
Examples in Imaging and Radiation Therapy



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- Example: Computer-based treatment planning
 - Garbage in, garbage out
 - Understanding of the limits of IMRT (physics of RT)
 - Understanding of the potential clinical tasks

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