

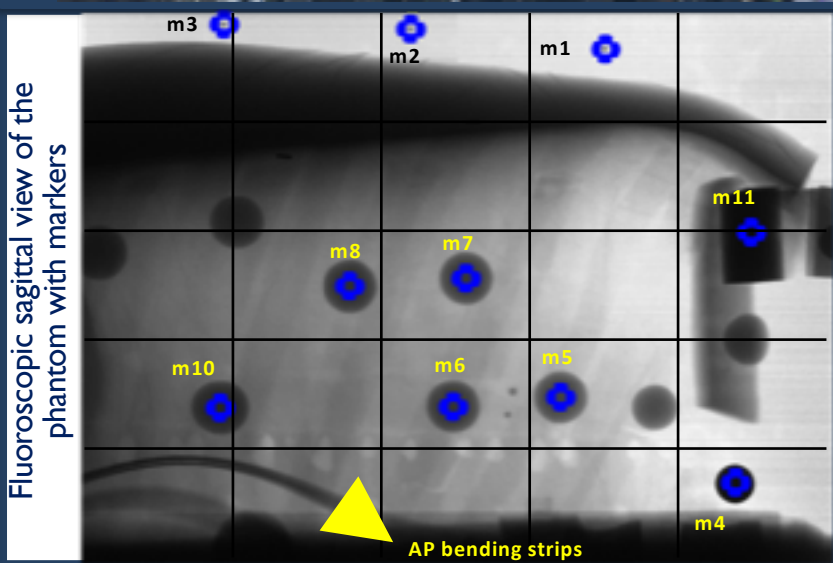
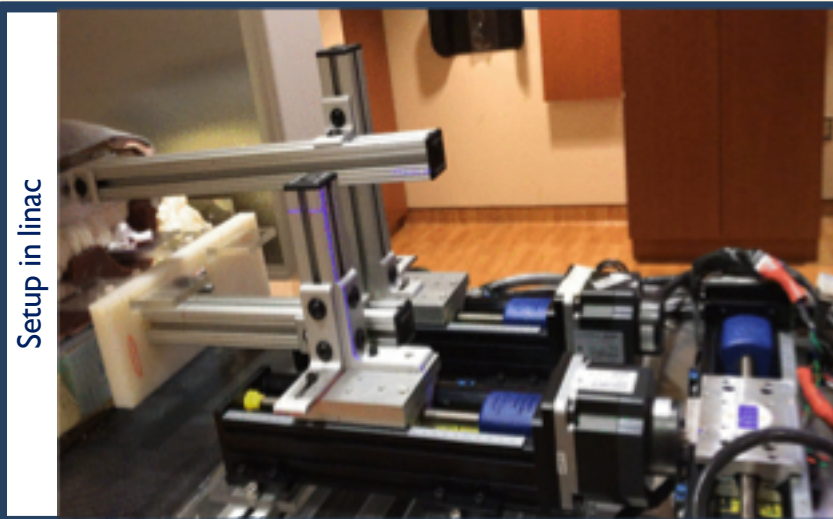
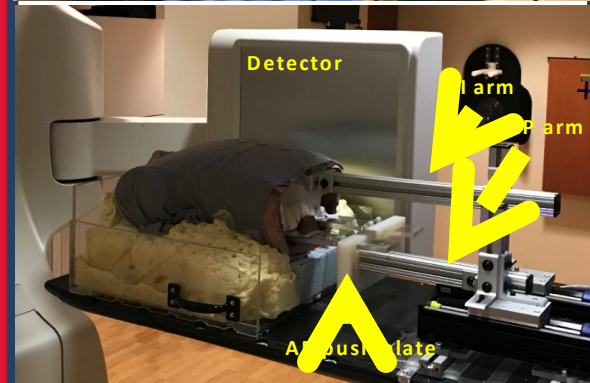
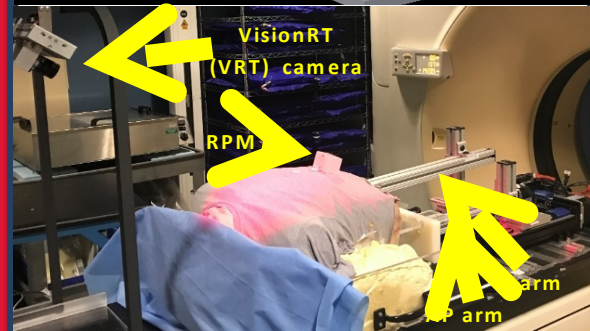
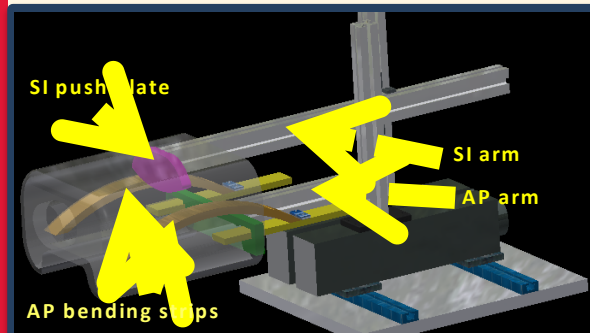


# Externally and internally deformable lung motion phantom with programmable, variable external-internal correlation

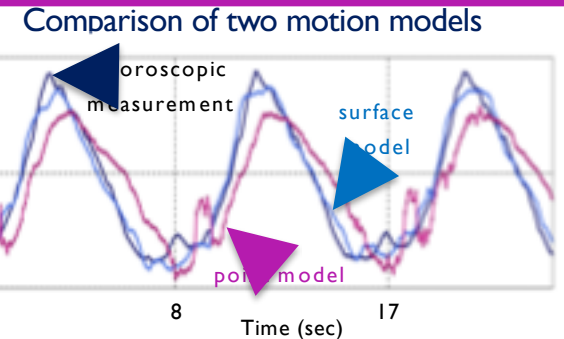
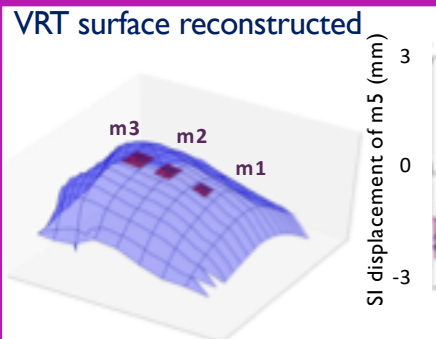
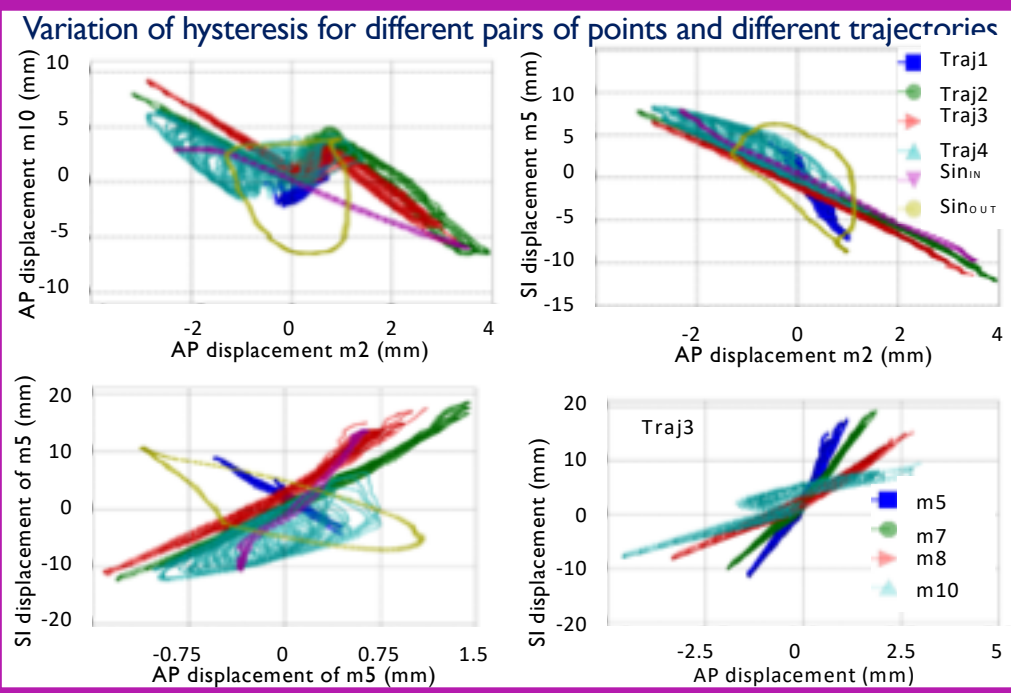
**Purpose:** Lung phantoms used to validate radiotherapy motion management strategies have fairly simplistic designs that do not adequately capture complex phenomena observed in human respiration such as variable hysteresis and variable correlation between different parts of the thoracic anatomy. We present the design and implementation of a programmable, externally and internally deformable lung motion phantom that allows for a reproducible change in external-internal and internal-internal correlation of embedded markers.

Session Title: Treatment Implications of Motion Management  
Date and time: 08/02/2018, 7:30AM-9:30AM  
Presented by Maida Ranjbar  
Location: Davidson hall, ballroom A

## Method



## Results



**Conclusion:** Our novel two-axis design enables the phantom to emulate several phenomena observed in human respiratory that lead to variable hysteresis. We anticipate that such tools will become increasingly important for quality assurance of motion management technologies and techniques as our field moves toward increasingly potent forms of lung radiotherapy.