Laser Guide Star for Large Aperture Segmented Space Telescopes

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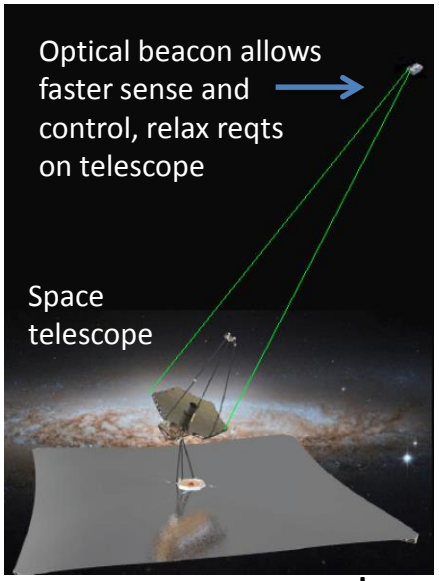

Research Objectives

- Improve stability of large aperture segmented space telescopes
- Better throughput for faster wavefront control. Photometric calibration.
- Relax manufacturing and assembly tolerances. Reach more targets with high contrast.
- Start TRL 1-2, exit TRL 3-4; propose detailed simulations, prototyping.

Approach

- Model improvement in wavefront sensing and control using laser guide star to demonstrate feasibility and quantify expected improvements.
- Systems engineering trade studies to define architectures with most benefit.

Potential Impact

- Reduce cost and complexity of large aperture segmented space telescopes.
- Improve stability. Increase ability to do high contrast imaging.
- Also benefits photometric calibration.
- Results relevant to large space telescope study teams.

Figure modified from http://asd.gsfc.nasa.gov/luvoir/docs/tech/Bolcar_SPIE_2015_presentation.pdf