

# NASA MidEx

## with strong Japanese (and other) participation

J. A. Klimchuk, NASA/GSFC

- A MidEx would be a smaller mission to fill the gap before Solar-C (**not a substitute**)
- ~ \$200M excluding launch vehicle
- AO probably in late 2018 or early 2019
- Positive initial reactions from Steve Clarke and Saku Tsuneta
- A Japanese Epsilon-class mission with strong NASA participation is another gap filling option
- In addition to or instead of Solar-C?

# Science Focus

- Option: Coronal science of the original Solar-C  
(EUV imaging spectrograph and/or high-res coronal imager)

Solar-C could then have an expanded emphasis on the lower atmosphere

- Option: Something entirely different
- Need to coordinate the two missions

# 5-10 MK Temperature Regime

- Largely unexplored -- a discovery space
- Observe plasma as it is energized,  
not after it has cooled and valuable information has been lost
- Provides direct information about the energy release process  
Magnetic reconnection: Petschek, plasmoids, or turbulence?
- Breakthroughs in understanding coronal heating, jets, CMEs, flares, etc.
- Need line profiles for information on spatially unresolved plasmas

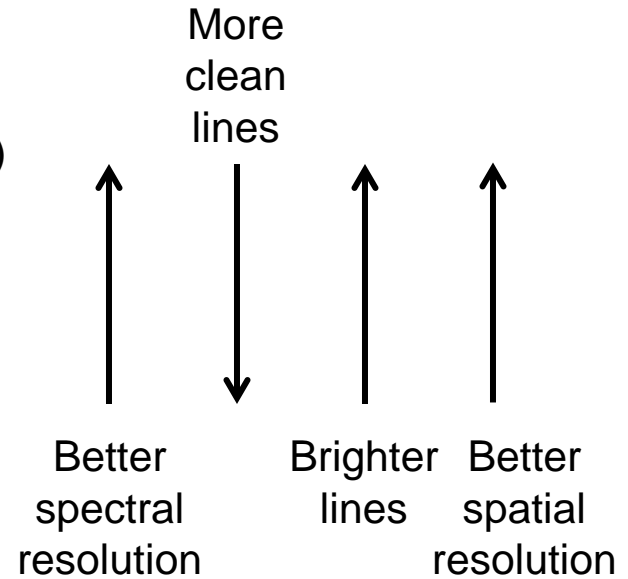
# Comparative Wavelength Regions

~ 1000 Å (EUVST/LEMUR, normal inc spec, R = 30,000)

~ 100 Å (EUNIS, normal inc spec, R = 10,000)

~ 10 Å (MaGIX, grazing inc spec, R = 1000)  
(Solaris-X, microcal, R = 1000)

$$R = \lambda/\Delta\lambda = 10,000 \leftarrow \rightarrow 30 \text{ km/s}$$



Fe XVIII  
logT = 6.85

974.86 46  
93.93 39  
14.20 6

Fe XIX  
logT = 6.95

1118.05 47  
108.35 50  
13.52 5

Fe XX  
logT = 7.00

121.84 46  
12.82 4

Fe XXI  
logT = 7.05

1354.06 121  
128.75 99  
12.28 9