

Mike,

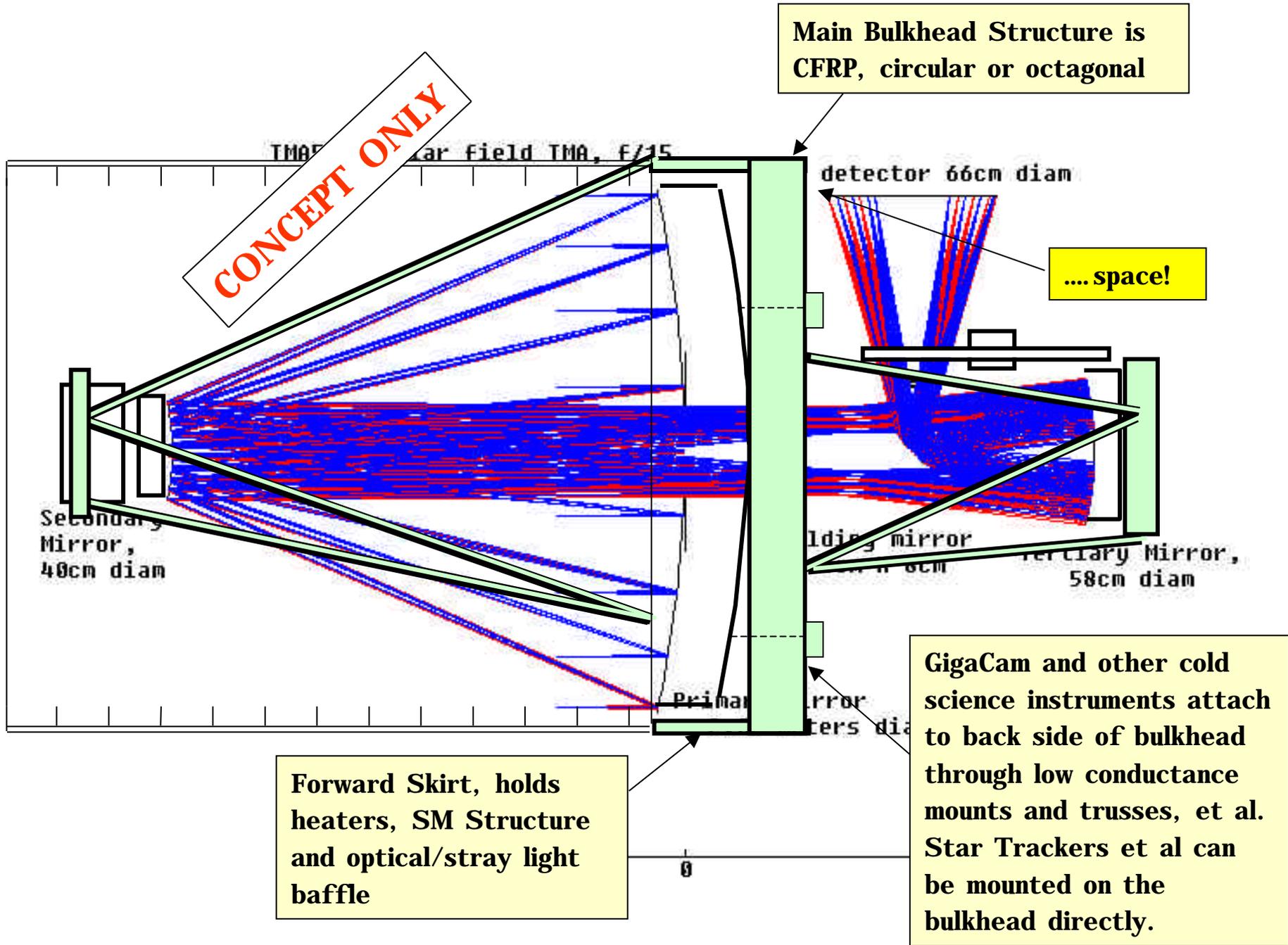
Using TMA59 with the increase space between the PM and the Tertiary makes the mechanical design much simpler. I'm sorry that I didn't ask about this option earlier. It looks as if a full bulkhead can now be located behind the PM, as opposed to either the ring structure surrounding it like Hubble (what I had been referring to as Configuration #5A and 5B) or with the bulkhead located behind the GigaCam and long standoffs to a delta-frame just behind the mirror (what I had been referring to as Configuration #4A, which nobody really liked). With the TMA59 design we can mount a 'cold' instrument assembly on the bulkhead through low-conductance mounts as noted on the 'drawing'. The mirror itself could be mounted the HST way with three axial 'ball-ended' struts and three tangent bars or with three bipod flexures which can react tangential and axial loads. Both have a usage history but it's not important now to pick which way to go. A variety of SM suport structures can be used with this configuration, the 'radial engine mount' arrangement (for anyone who remembers P-47's and other propellor driven aircraft) shown here is but one af several designs. So it seems to me that the 'stretched' optical design has a major advantage

in the structural/mechanical engineering arena. It's easier to make, especially if it's configured like an octagon rather than a circular structure and stiffer than a ring would be for comparable weights. Mirror mounting is better than a ring for a variety of reasons and it'd be really easy to add pneumatic off-loaders for system and optical train level testing. This wasn't the case for #4A as I recall.

Like I said, I'm sorry that I didn't bring the 'stretching' question up earlier. It drives things away from complex or unconventional or both. It is probably a lot easier to deal with than the 'large' cold section that I had been looking at in Configuration #5. The TM can be a 'warm' mirror which might have been a problem in the #5 configuration. Unfortunately not much space for a central baffle coming from the center of the PM, but this may not be an issue with a TMA(?)

That's it for now,
Michael (K)
2/4/01

CONCEPT ONLY



Main Bulkhead Structure is CFRP, circular or octagonal

.... space!

GigaCam and other cold science instruments attach to back side of bulkhead through low conductance mounts and trusses, et al. Star Trackers et al can be mounted on the bulkhead directly.

Forward Skirt, holds heaters, SM Structure and optical/stray light baffle