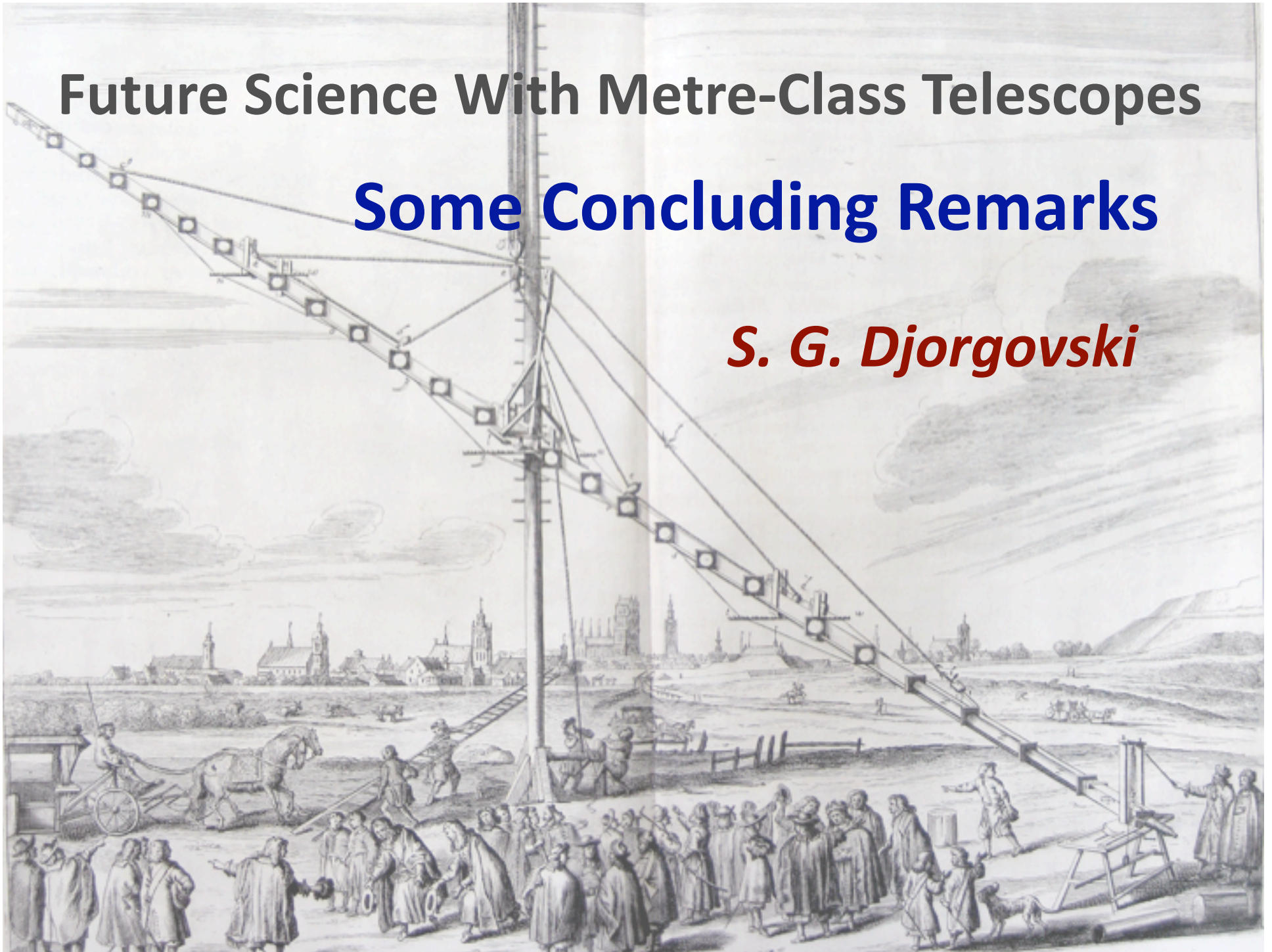


Future Science With Metre-Class Telescopes

Some Concluding Remarks

S. G. Djorgovski



The Four Major Scientific Topics in Astronomy Today

Role for Small Telescopes?

- Early Galaxy Formation X
- Extrasolar Planets ✓
- Time-Domain Astronomy ✓✓
- The Nature of Dark Energy (✓)

If you want to get significant results, work on significant problems

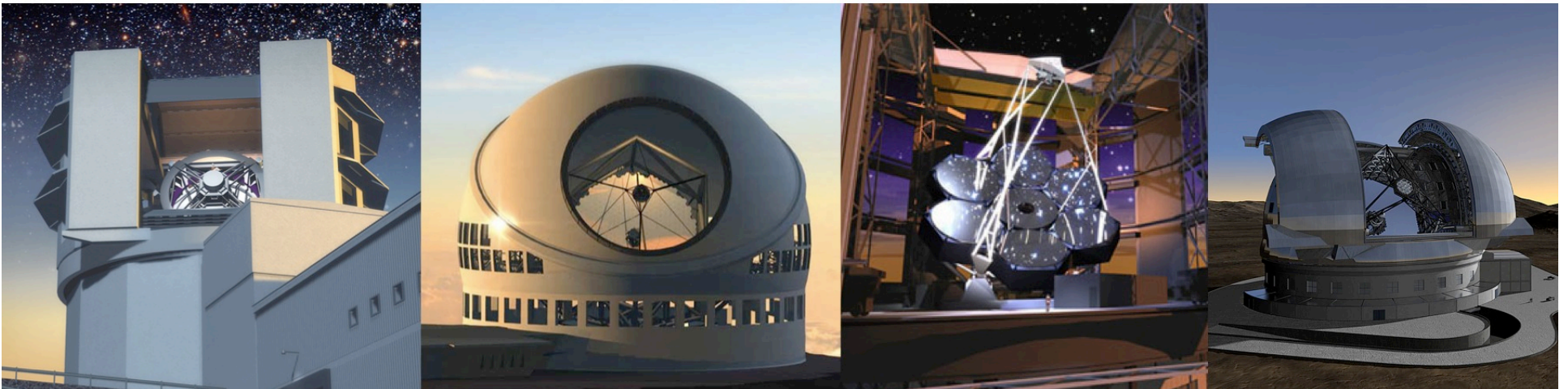
“If something is not worth doing at all, it is not worth doing well”

– *Ivan King*

Some big glass today (8-10 m class):



... and bigger glass to come:



How Can Small Telescopes Do Big Science?



“Samo Sloga Srbina Spasava”
 (“Only unity will save Serbs”)

– Vožd Karadjordje

“We must all hang together, or
assuredly we shall all hang separately”
 (“Moramo da visimo zajedno, ili ćemo
sigurno visiti pojedinačno”)

– Benjamin Franklin



***Leverage the power of telescope systems,
networks, and collaborations!***

Time-Domain Astronomy

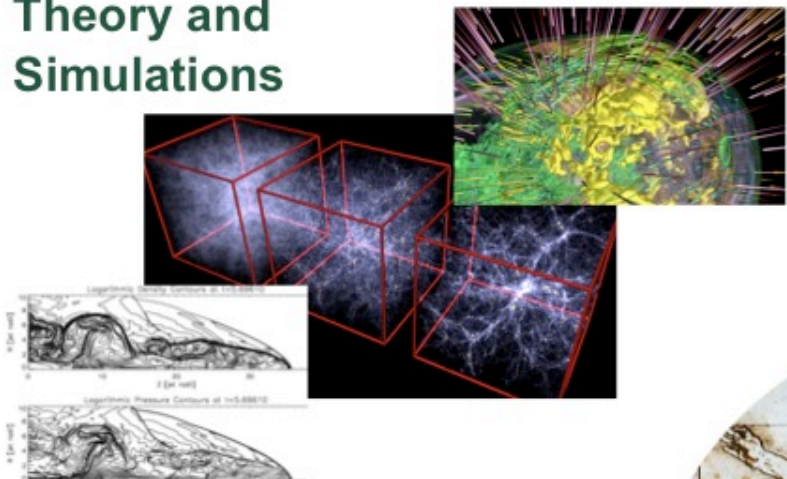
- It is an *astronomy of telescope-computational systems*, and small telescopes play a significant role
- ... Especially in the follow-up bottleneck: multicolor photometry, low-resolution spectroscopy
 - Hierarchical triage classification and prioritization of transients
- It touches on all subfields of astronomy – there is something for everyone, from asteroids to cosmology
 - A variety of possible collaboration / system architectures
- Use small telescopes strategically
 - To help generate legacy data sets in large collaborations
 - Follow-up observations of targets selected from surveys
 - Training and technology development and testing
 - Specialize & optimize!

Leverage the Power of the Fastest Developing Technology in History

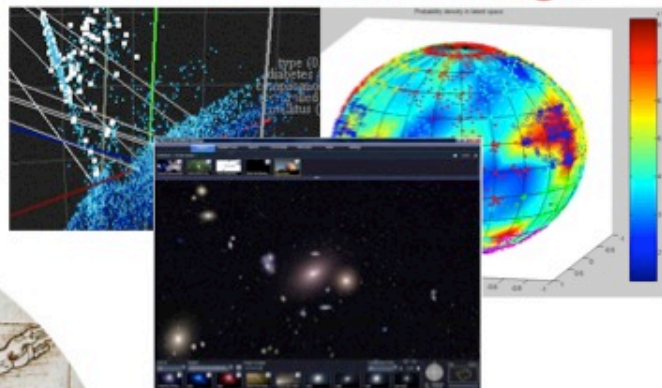
- Computing/information tech. is *enormously empowering*
 - It is paid for by the commercial interests
 - “Big Data” science is a Big Trend, with a significance for all science, and beyond (economy, etc. – good politically)
 - You have to develop the necessary expertise: AstroInformatics!
- Anybody with an internet connection can do *a first rate science* – data, tools, literature, and collaborators are all in the cyberspace
 - “The computer is the new telescope”
 - This is especially important for countries without expensive observational facilities
 - Strong education & outreach components

Science in Cyberspace

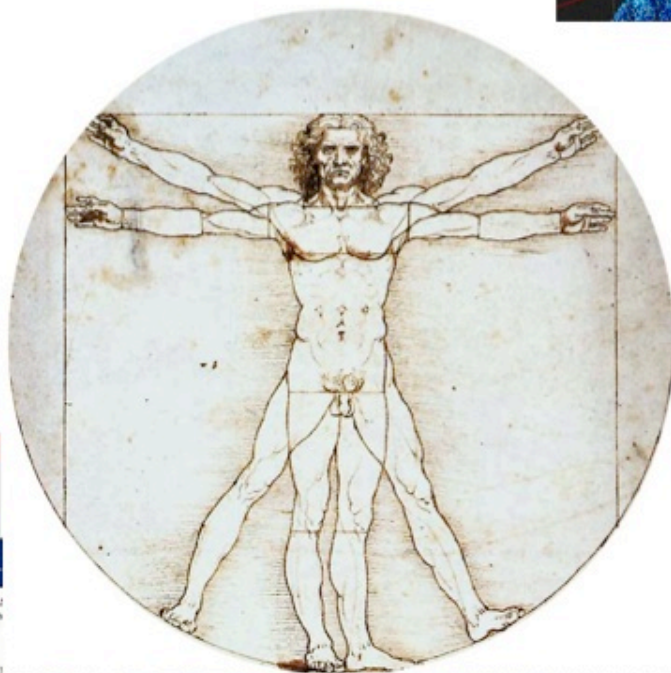
Theory and Simulations



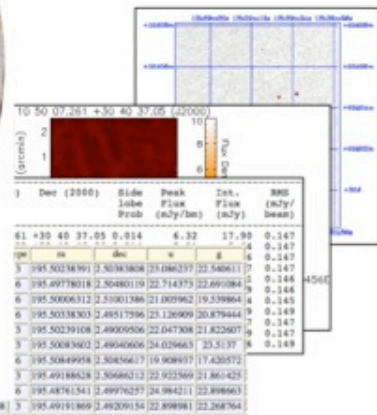
Visual Displays and Linking of Data and Knowledge



Published Literature



Data Archives



Semantic Web



Searching NED

Object query - 4C 273

4C 02.32 - Quasar

Other object types: Red

RAJ 147 30 309.076 38.080 1090.1980 J2000.0
 DECJ 1228 4023 10889.1 10889.1 10889.1 10889.1
 (2A, 16, 26, 149, 16, 8, 888, 48, 1084, 5007)
 (1993), 12271, (1993), 12271, 1993)
 (100, 100, 100, 100, 100, 100, 100, 100)
 (100, 100, 100, 100, 100, 100, 100, 100)
 (100, 100, 100, 100, 100, 100, 100, 100)
 (100, 100, 100, 100, 100, 100, 100, 100)

Published Lists

No.	Observed Bandwidth	Measurement	Discovery	Class	Size	Measurement	Comment
1	30000	0.1-1000	1978	10	10	10	10
2	30000	0.1-1000	1978	10	10	10	10
3	30000	0.1-1000	1978	10	10	10	10

Virtual Observatory

