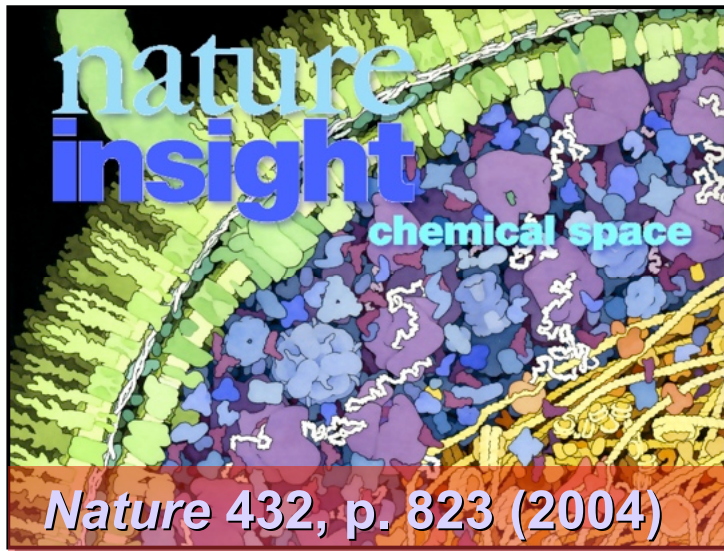


Q2: What capabilities could quantum spin microscopy provide?

A2: Access to the unbounded new planetary resource of “biospace”

- **The resources of a single human cell’s “biospace” are as unbounded as the resources of outer space**



- **Each cell contains as 100x as many atoms as there are stars in the galaxy**
- **Surveying this unbounded structural domain will be the largest science and technology enterprise in history**
- **The knowledge gained will provide an extraordinary new resource for 21st Century innovation and enterprise**

To the extent that maturing MRFM technologies can approach the quantum limits to channel capacity, tabletop-scale devices will observe hundreds of atomic coordinates per second. A cluster of several hundred such devices, deployed like the clusters of sequencers in the Human Genome Project, would observe in excess of 10^{12} coordinates per year.

Archiving, interpreting, and sharing this rich flow of structural data would comprise the largest scientific project in history. As pay-off, the unifying context of the project would amplify the value of a broad spectrum of atomic-scale imaging projects relating to (*e.g.*) materials science, nanoscale electronics, quantum physics, biology, and medicine.