SOCI 325: Sociology of science

Sep 27

1. Administrative
2. The Kuhnian revolution
3. Reading discussion

Administrative

Discussion feedback

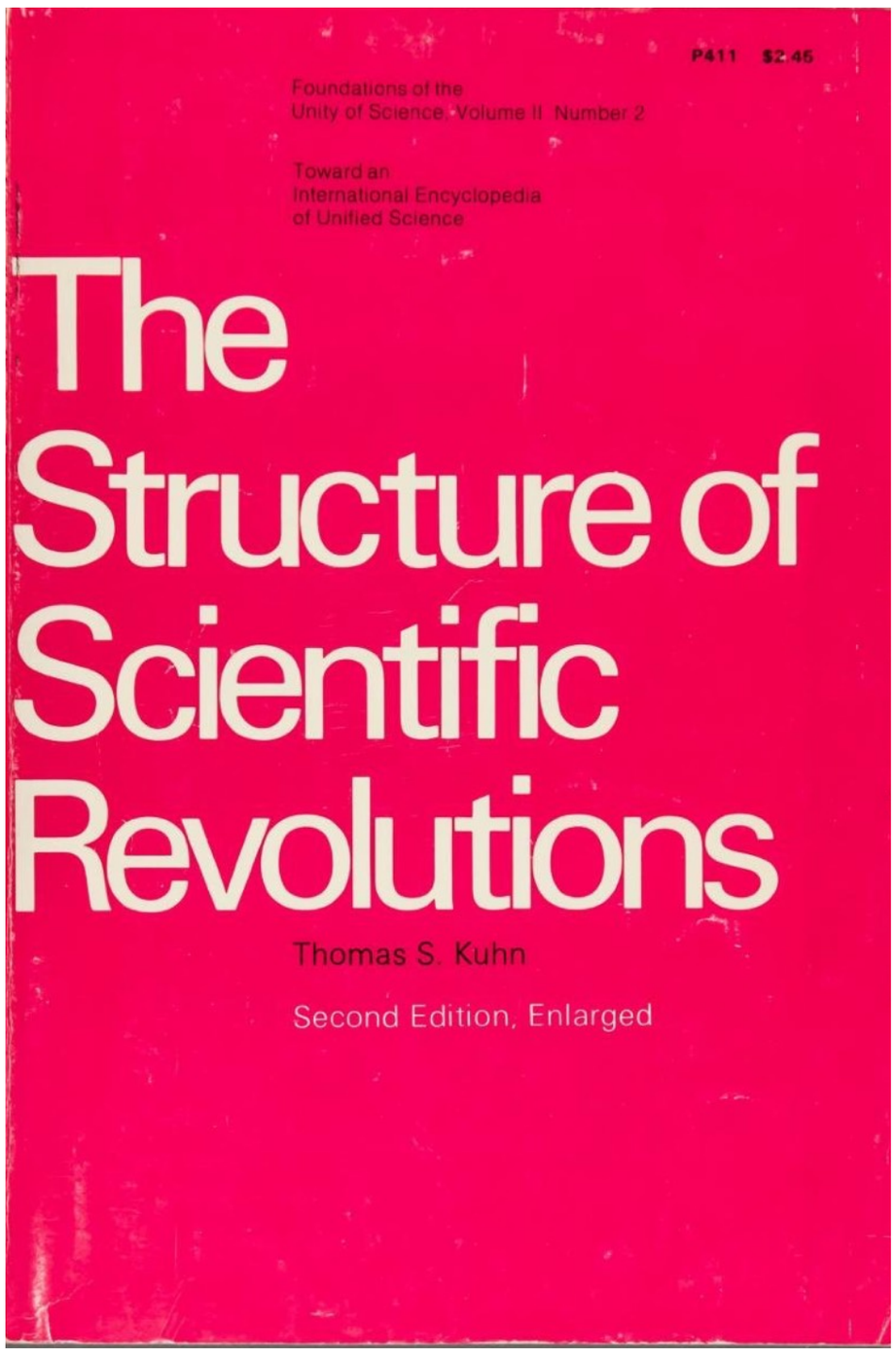
- Feedback on group discussion 1 should be available later this week

Discussion prompt submissions

- Still no topic assignments (technical issues)
- Should be available soon!

The Kuhnian revolution

Kuhnian revolution



Thomas Kuhn (1922–1996)

- Physicist by training
- Transitioned to history and philosophy of science after PhD

The Structure of Scientific Revolutions

- First published in 1962
- "Normal science" vs. "paradigm shifts"
- Directly confronted the prevailing (norm-centric) view of science as an institution
- Had a huge impact, arguably spurring its own paradigm shift in the philosophy and sociology of science

Example from particle physics

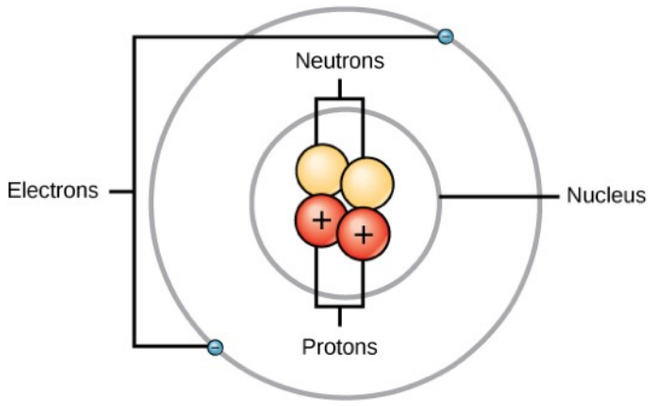
Normal science

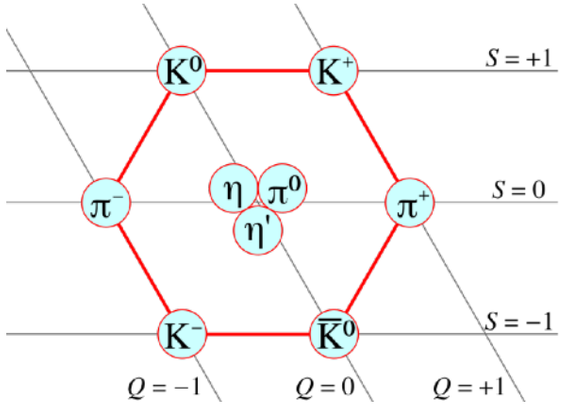
Crisis & Revolution! (paradigm shift)

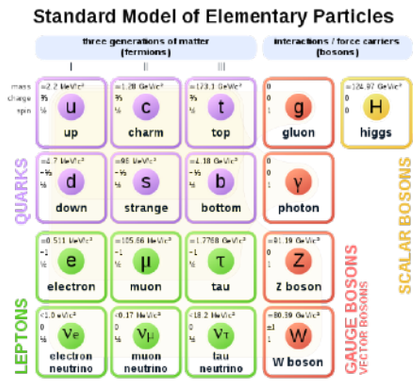
Normal science

November Revolution

1940s	1950s	1960s	1970s	1980s	…	2010s
Widespread agreement on elementary particles (proton, neutron, electron, photon)	Continued discovery of more and more members of the elementary “particle zoo”	Active development of new models (e.g. “eightfold way”)	Acceptance of Standard Model, explaining existing anomalies in a new theoretical framework, and predicting the existence of undiscovered particles		Experiments confirming predictions of the Standard Model, mainly through observation of predicted particles (top quark, tau neutrino, Higgs boson)	







See Pickering (1984) “Constructing Quarks: A Sociological History of Particle Physics”

Why was Kuhn revolutionary?

Anti-positivist

- ***Positivism***:
  Neutral observations inform and shape objective knowledge and theories.
- In TSSR, Kuhn suggests instead that the theoretical frameworks of a paradigm shape observations and define scientific facts.
- For Kuhn, facts do not exist without a paradigm that can give them meaning. Observation is ***dependent*** on theory.

Anti-falsificationist

- ***Falsificationism***:
  Theories are disproven by counter-examples.
- Kuhn argues that counter-examples (anomalies) do not normally cause crisis.
- Only during revolutions in paradigm are anomalies employed as justification for new worldviews.

Next class

Structural barriers to participation in science

Required reading:

- van den Brink and Benschop (2012)
  Gender practices in the construction of academic excellence: Sheep with five legs

Discussion

Discussion

Group discussions:

- The remainder of the group discussions will be submitted in 9 ‘clusters’.
- *Most* discussions cover about two readings/days
- **Today’s discussion (along with Wednesday’s) is due by 5pm Thursday**
- Responses are due on Thursday after the last discussion in the cluster
- Work directly on the document available in your group chat; there is no need to submit the document

Notes on responses:

- Try to respond to most of the prompts.
  (2 per topic at a *minimum*)
- Avoid terse, bullet-point style.
- Refer directly to the text.

Image credit

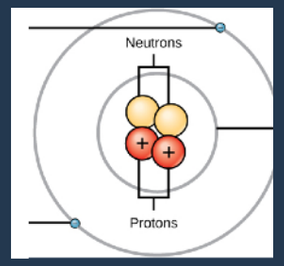


Image credited to CNX OpenStax

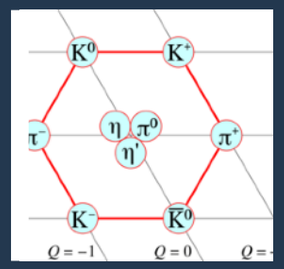


Image by Wikimedia user Stannered

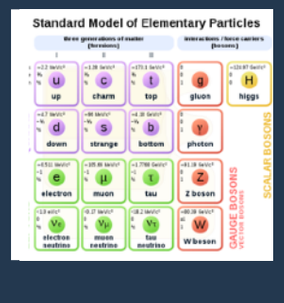


Image by Wikimedia users MissMJ and Cush