



European University at St Petersburg (EUSP)

16-26 November 2012

The Politics of Technoscience: STS Perspectives on Governance of Science and Technology

Convenor: Dr. Elena Simakova (Exeter University, UK)

Sat-Sun: 2-5 pm

Mon-Fr: 6-9 pm

Course objectives:

This advanced course aims to explore key issues involved in the current debate on governance of science and technology from various viewpoints in Science and Technology Studies (STS). We will overview some of the approaches in STS that are examined in the governance debate and practices of technology assessment. The module features several prominent debates in STS concerning the politics of artefacts, commercialisation of science and the response of STS, the control over technology, epistemic places as well as the roles of STS in governance processes. After the completion of the module, the students will be able to produce a critical argument of the themes above. It is assumed that the students are already familiar with STS foundations as prerequisite for the module. In-class exercises are offered to stimulate discussion of relevance of the literatures and debates reviewed to the Russian context. Each class will involve paper presentations by one or more students, and it is expected that students will extensively prepare for the classes and will be ready to engage with the literature as well as discuss particular case studies as in the exercises designed for each session.

NB: The key readings are listed for each particular week with additional items cited as recommended or additional readings. There will be no class on Wednesday 21 November.

Assessment:

An essay of 4,000 words addressing one of the following themes:

1. Discuss key propositions of the sociology of expectations approach, with relevant examples.
2. Critically assess the role of science in society from the point of view of 'social contract' of science.
3. Provide an argument discussing the status of public engagement exercises in the governance of science and technology.

4. Are the global governance of science and technology efforts exclusionary for non-democratic societies?

1. Science and technology: a sociology of expectations approach

Borup, M., Brown, N., Konrad, K. & Van Lente, H. (2006) The Sociology of Expectations in Science and Technology, in *Technology Analysis & Strategic Management*, Vol. 18, Nos. 3/4, 285–298.

Brown, Nick and Michael, Mike (2003) "A Sociology of Expectations. Retrospecting Prospects and Prospecting Retrospects", *Technology Analysis and Strategic Management* 15(1): 3-18.

Epstein, Steven. The Rise of 'Recruitmentology': Clinical Research, Racial Knowledge, and the Politics of Inclusion and Difference, in *Social Studies of Science* 38: 801-832.

Fortun, Mike. 2001. Mediated speculations in the genomic futures markets. *New Genetics and Society* 20 (2): 139-156.

Selin, Cynthia. 2008. The Sociology of the Future: Tracing Stories of Technology and Time, in *Sociology Compass* 2/6 (2008): 1878–1895.

Van Lente, Harro and Arie Rip. 1998b. The rise of membrane technology: from rhetorics to social reality in *Social Studies of Science*, 28 (2): 221-254.

Further readings:

Brown, Nik, Brian Rappert and Andrew Webster, eds. 2000. *Contested Futures: a Sociology of Prospective Techno-Science*, Burlington, VT: Ashgate.

Rabinow, Paul and Talia Dan-Cohen. 2005. *A Machine to Make a Future: Biotech Chronicles*. Princeton, NJ: Princeton University Press

Exercise:

Think of an example of emerging research fields and technologies in Russia (or other national contexts) and critically assess their trajectories, successes and failures.

2. DEBATE: Do Artefacts Have Politics?

Joerges, Bernward, 1999a, Do Politics Have Artefacts? *Social Studies of Science* 29(2), 411.

Joerges, Bernward, 1999b, Scams Cannot be Busted. Response to Steve Woolgar and Geoff Cooper, "Do artefacts have ambivalence? - Moses' bridges, Winner's bridges and other urban legends in STS", *Social Studies of Science* 29(3), 450-457.

Winner, Langdon: "Do Artifacts Have Politics?" in *Daedalus*, Vol. 109, No. 1, Winter 1980. Reprinted in *The Social Shaping of Technology*, edited by [Donald A. MacKenzie](#) and Judy Wajcman (London: Open University Press, 1985; second edition 1999). Also adapted in Winner's book "The Whale and the Reactor: A Search for Limits in an Age of High Technology", University of Chicago Press, 1986.

Woolgar, Steve and Cooper, Geoff, 1999, Do artefacts have ambivalence? Moses' Bridges, Winner's Bridges and other. Urban Legends in S&TS, *Social Studies of Science* 29(3), 433-449.

Further reading:

Jasanoff, S. ed. (2004), *States of Knowledge: The Co-Production of Science and Social Order*, London: Routledge.

Exercise:

Bring in one media article discussing capabilities/functional deficiency/societal function of a technological artefact and prepare to discuss it in class.

3. Commercialisation of science and the response of STS

Croissant, J. L. and Smith-Doerr, L. (2007), 'Organizational Contexts of Science: Boundaries and Relationships between University and Industry', in Hackett, E., O. Amsterdamska, M. Lynch and J. Wajcman (eds.), (2008), *The Handbook of Science and Technology Studies*, Third edition, Cambridge, Mass: MIT Press: 691-718.

Martin, P., Brown, N. and Kraft, A. (2008) From Bedside to Bench? Communities of Promise, Translational Research and the Making of Blood Stem Cell, *Science as Culture* 17 (1): 29-41

Mirowski, P. and Sent E.-M., (2007), 'The Commercialization of Science and the Response of STS', in Hackett, E., O. Amsterdamska, M. Lynch and J. Wajcman (eds), (2008), *The Handbook of Science and Technology Studies*. Third edition. Cambridge, Mass: MIT Press: 635-690.

Owen-Smith, J., (2005), 'Dockets, Deals and Sagas: Commensuration and the Rationalization of Experience in University Licensing', in *Social Studies of Science*, 35: 69-97.

Simakova, Elena (2011) 'Collaboration Talk: the folk theories of nano research', in *Science as Culture*, 12(2): 177-203.

Thurs, D. (2007) 'No Longer Academic: Models of Commercialization and the Construction of a Nanotech Industry', *Science as Culture*, 16:2, 169 – 186.

Further reading:

Guston, D. (2000) *Between Politics and Science*, New York: Cambridge University Press.

Exercise:

Find a media publication discussing the regimes of commercialisation in Russia: what are the issues at stake?

4. Intellectual Property Rights

Hilgartner, S. (2002) Acceptable Intellectual Property, *Journal of Molecular Biology*, 319, 943-946.

Hilgartner, S. (2009) Intellectual Property and the Politics of Emerging Technology: Inventors, Citizens, and Powers to Shape the Future." *Chicago-Kent Law Review*, Vol. 84, No. 1, pp. 197-224. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1654445

Metlay, G. (2006) Reconsidering Renormalization: Stability and Change in 20th-Century Views on University Patents, *Social Studies of Science*; 36(4):565-597.

Myers, G. (1995) From Discovery to Invention: The Writing and Rewriting of Two Patents, pp. 57-105 *Social Studies of Science*, February 1995 vol. 25 no. 1.

Powell, W. W., Owen-Smith, J. and Colyvas J. A., (2007), 'Innovation and Emulation: Lessons from American Universities in Selling Private Rights to Public Knowledge,' *Minerva*, 45 (2): 121-142.

Further readings:

Biagioli, M., Jaszi, P., Woodmansee, M. (eds.) (2009) "*Making and Unmaking Intellectual Property*", University of Chicago Press.

McSherry, C. (2001) *Who Owns Academic Work? Battling for control of intellectual property*: Harvard University Press.

Exercise:

What is the status of Russian patent system in the global context? – Discuss.

5. Governance and Accountability

Hilgartner, S. (2007a) Making the Bioeconomy Measurable: Politics of an Emerging Anticipatory Machinery, *Biosocieties* 2 (3): 382-386.

Hilgartner, S. (2007b) Overflow and Containment in the Aftermath of Disaster, *Social Studies of Science* 37(1), 153-158.

Miller, C. (2007) Democratization, International Knowledge Institutions, and Global Governance, in *Governance: An International Journal of Policy, Administration, and Institutions*, Vol. 20, No. 2: 325–357.

Woolgar, Steve and Cateelijne Coopmans (2006) Virtual Witnessing in a Virtual Age: A Prospectus for Social Studies of E-Science, Chapter 1 in Christine Hine (ed.) *New Infrastructures for Knowledge Production: Understanding E-Science*. Idea Group Inc: 1-25.

Wyatt, S. (2004) “Danger! Metaphors at Work in Economics, Geophysiology and the Internet”, in *Science, Technology & Human Values* 29/2, pp. 242-261.

Further reading:

Jasanoff, S. (2005), *Designs on nature. Science and democracy in Europe and the United States*, Princeton University Press, Princeton, pp. 1-12; 13-41.

Power, M. (1997) *The Audit Society*, Oxford: Oxford University Press.

Strathern, M. (ed.) (2000) *Audit cultures: Anthropological studies in accountability, ethics and the academy*. London: Routledge.

Exercise:

Find examples of public debate over controversial technical developments and try to identify its key players and main rhetorical patterns.

6. Public Engagement

Irwin, A. (2006) “The Politics of Talk: Coming to Terms with the ‘New Scientific Governance’, *Social Studies of Science*, 36 (2), pp. 299–320.

Horst, M and Michael, M (2011) “On the shoulders of idiots: Re-thinking science communication as 'event'”, *Science as Culture*, 20(3): 283-306.

Horst, M. and Irwin, A. (2009), “Nations at Ease with Radical Knowledge: On Consensus, Consensusing and False Consensusness”, *Social Studies of Science*, OnlineFirst, published on September 24, 2009

Jasanoff, S. (2003),”Technologies of Humility: Citizen Participation in Governing Science”, *Minerva* 41, pp. 223-244.

Jordan, A., Wurzel, R.K.W. and Zito, A. (2005) “The Rise of “New” Policy Instruments in Comparative Perspective: Has Governance Eclipsed Government?”, *Political Studies*, 53(3), pp. 477-496.

Recommended readings:

Michael, M. (2009) “Publics performing publics: Of PiGs, PiPs and Politics”, *Public Understanding of Science*, 18(5), pp. 617-631.

Thorpe, Ch. and Gregory, J. (2010) “Producing the Post-Fordist Public: The Political Economy of Public Engagement with Science”, in *Science as Culture* 19(3): 273-301.

Wynne, Brian (2001) Creating Public Alienation: Expert Cultures of Risk and Ethics on GMOs, in *Science as Culture*, Volume 10, Number 4, 2001.

Exercise:

Discuss the adoption of genetically modified organisms (GMOs) in Russia.

7. DEBATE: Science and Technology Studies meet Technology Assessment (1)

Responses to “the dilemma of control” (“the Collingridge dilemma”)

Collingridge, David (1984) Controlling Technology (Response to Johnston), *Social Studies of Science* 15(2), 373-380.

Joerges, Bernward, 1994, Expertise Lost: An Early Case of Technology Assessment, *Social Studies of Science*, 24(1), 96-104.

Johnston, Ron (1984) Controlling Technology: An Issue for the Social Studies of Science, *Social Studies of Science* 14, 97-33.

Johnston, Ron, 1985, The Social Character of Technology (Reply to Collingridge), *Social Studies of Science* 15(2), 381-383.

Simakova, Elena and Coenen, Christopher (2011) Exploring the role of interpretation in the political making of technosciences, paper presented at Panel 3: Probing IPA's Contribution to Analysing Regulatory Regimes of *the 6th International Conference in Interpretive Policy Analysis: Discursive Spaces. Politics, Practices and Power*, June 23 - 25, 2011, Cardiff University, Wales, UK.

Additional reading:

Collingridge, David (1980) *The Social Control of Technology*, New York: St. Martin's Press.

Exercise:

Critically evaluate theoretical premises behind various approaches to controlling technology. Find examples of current attempts to control technological development and be prepared to discuss in class.

8. DEBATE: Science and Technology Studies meet Technology Assessment (2)

STS and TA in a Geopolitical Perspective

Garforth, Lisa and Tereza Stöckelová (2012) Science Policy and STS from Other Epistemic Places, in *Science, Technology & Human Values*, March 2012; vol. 37, 2: pp. 226-240.

Stöckelová, Tereza (2012) Immutable Mobiles Derailed: STS, Geopolitics, and Research Assessment, in *Science, Technology & Human Values*, March 2012; vol. 37, 2: pp. 286-311.

Recommended additional readings:

Decker, Michael and Fleischer, Torsten (2010) When Should There Be Which Kind of Technology Assessment? A Plea for a Strictly Problem-Oriented Approach From the Very Outset, *Poiesis and Praxis* 7(1-2), 117-133.

Grunwald, Armin, 2009, Technology assessment - Concepts and methods, in: Meijers, A. (ed.) *Philosophy of technology and engineering sciences* (Handbook of the philosophy of science, vol. 9). Amsterdam, Boston, Heidelberg, London, New York: Elsevier, 1103-1146

Exercise:

Find examples of technology assessment reports in Russian and discuss the key strategies and approaches.

9. DEBATE: STS in a Policy Room

Nowotny, Helga (2007) 'How Many Policy Rooms are There?: Evidence-Based and Other Kinds of Science Policies', *Science Technology Human Values* 32, 479-490

Webster, Andrew (2007a) *Crossing Boundaries: Social Science in the Policy Room*, *Science, Technology and Human Values* 32; 458-478.

Webster, Andrew (2007b) *Reflections on Reflexive Engagement: Response to Nowotny and Wynne*, *Science, Technology and Human Values* 32, 608-615

Wynne, Brian (2007) *Dazzled by the Mirage of Influence?: STS-SSK in Multivalent Registers of Relevance*, *Science Technology and Human Values* 32, 491-503

Additional readings:

Michael Lynch (2009) *Going Public: A Cautionary Tale*, in *Spontaneous Generations: A Journal for the History and Philosophy of Science*, Vol. 3, No. 1 (2009) 213-219.

Michael Lynch and Simon Cole (2005), "STS on Trial: Dilemmas of Expertise," *Social Studies of Science* 35(2): 269-311.

Further reading:

Hilgartner, Stephen (2000) *Science on Stage: Expert Advice as Public Drama*, Stanford University Press.

Exercise:

Critically evaluate examples of deliberations between 'soft' sciences versus technical rationality.

10. Nanotechnology: a case study

Barben, Daniel, Eric Fisher, Cynthia Selin, and David Guston (2008) Anticipatory Governance in Nanotechnology, in Hackett, E. et al. (eds.). 2008. *The Handbook of Science and Technology Studies*, Third Edition. Cambridge, Massachusetts; London, England: The MIT Press. 979-1000.

Coenen, Christopher (2010) Deliberating visions: The case of human enhancement in the discourse on nanotechnology and convergence, in: Kaiser, M., Kurath, M., Maasen, S., Rehmann-Sutter, C. (eds.): *Governing future technologies. Nanotechnology and the rise of an assessment regime (Sociology of the Sciences Yearbook 27)*, Springer, 73-87.

Doubleday R (2007) 'Organizing Accountability: co-production of technoscientific and social worlds in a nanoscience laboratory' *Area*, 39(2): 166-175. doi:10.1111/j.1475-4762.2007.00742.x

Grunwald, Armin (2005) Nanotechnology: A New Field of Ethical Inquiry?, in *Science and Engineering Ethics* 11 (2): 187-201.

Kearnes, M. & Macnaghten, P. (2006) Introduction: (Re)Imagining Nanotechnology, introduction to a special issue, *Science as Culture*, 15(4): 279–290.

Nordmann, Alfred, 2007, If and then : a critique of speculative nanoethics, *NanoEthics* , 1(1), 31-46

Rip, Arie. 2006. Folk Theories of Nanotechnologists, in *Science as Culture*, 20 Vol. 15, No. 4: 349–65.

Simakova, E (2012), 'Making Nano Matter: an inquiry into the discourses of governable science', in *Science, Technology & Human Values*.

Wullweber, Joscha, 2008, Nanotechnology – An Empty Signifier à venir? A Delineation of a Techno-socio-economical Innovation Strategy, *Science, Technology & Innovation Studies* 4(1), 27-45.

Exercise:

Give an evaluation of nanotechnology as an emerging technoscientific initiative and characterise challenges for governance and ethics.

Further reading:

Kaiser, M., Kurath, M., Maasen, S., Rehmann-Sutter, C. (eds.): *Governing future technologies. Nanotechnology and the rise of an assessment regime (Sociology of the Sciences Yearbook 27)*, Springer.

Concluding discussion

Relevant reports:

Coenen, Christopher, Hennen, Leonhard, Link, Hans-Jürgen, 2009b, The ethics of synthetic biology. Contours of an emerging discourse, Technikfolgenabschätzung – Theorie und Praxis 18(2), 82-86. <http://www.itas.fzk.de/tatup/092/coua09a.htm>

Coenen, Christopher, Schuijff, Mirjam, Smits, Martijntje, Klaassen, Pim, Hennen, Leonhard, Rader, Michael, and Wolbring, Gregor, 2009a, Human enhancement (IP/A/STOA/FWC/2005-28/SC32 & 39), European Parliament, http://www.europarl.europa.eu/stoa/publications/studies/stoa2007-13_en.pdf

Felt, U. and Wynne, B. (2007), “Taking European Knowledge Society Seriously”. European Commission, Luxembourg: pp. 21-30.

http://ec.europa.eu/research/science-society/document_library/pdf_06/european-knowledge-society_en.pdf

Gottweis, Herbert and Braun, Kathrin, 2007, Participatory Governance and Institutional Innovation (final report of the EU FP6 project PAGANINI, Contract No. CIT2-CT-2004-505791. Deliverable Number 18, June 2007), http://www.univie.ac.at/LSG/paganini/finals_pdf/WP8_FinalReport.pdf

LSG (Life Science Governance), 2011, Introduction, <http://www.univie.ac.at/life-science-governance/intro.htm>

Woolgar, Steve, Coenen, Christopher and Simakova, Elena, 2008, The Ontological Politics of Convergence (Appendix C of the final EU FP6 CONTECS project report), see: <http://www.contecs.fraunhofer.de>