A high-quality physics Q&A site
and open peer-review system

5th Offtopicarium (25-29.09.2014, Węgierska Górka, Poland)

Outline

- Introductory remarks
- The Question&Answers section
- The Reviews section
- Time for discussion and questions

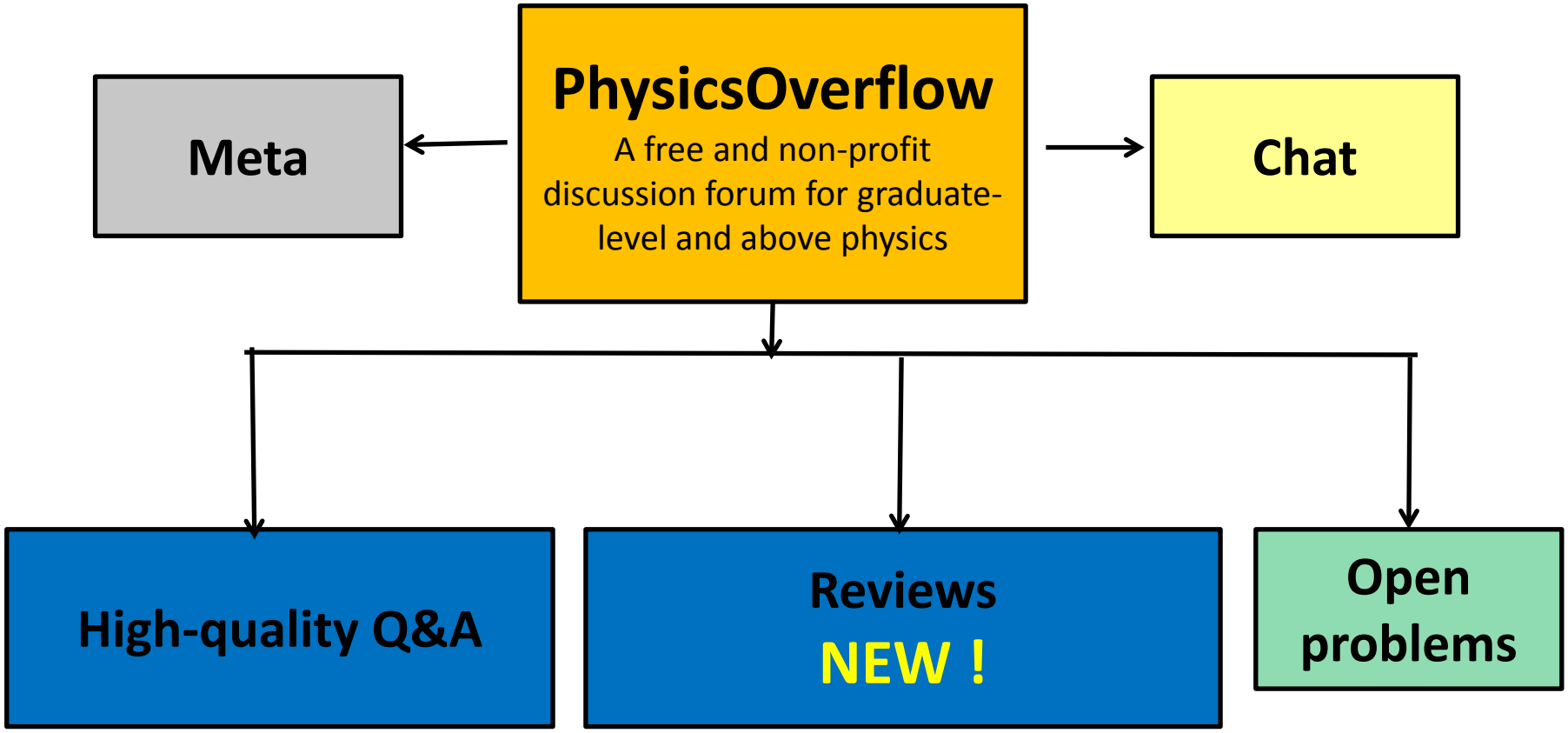
Why another physics site?

- Since Theoretical Physics SE was closed, a high-level site for physics (in analogy to MathOverflow) was missing.
- Other existing physics sites and fora such as
  - Quora: rather popular level Q&A, not only about physics
  - Physics Forums: content not votable, not an isolated graduate-level site
  - Physics SE: general physics site for all levels, intended to build up a „clean“ library for the masses of Googlers

  were not suitable to our needs
- Journal peer-reviewing is outdated and sometimes even blatantly sucks

  ➡ **Reviews** section of PhysicsOverflow

The organisation of PhysicsOverflow



PhysicsOverflow in a nutshell

- Self governement: no externally prescribed goals, rules, guidelines, etc to fullfill
- Frankness: “robust” discussions allowed (we are all grown ups)
- Community moderation: People who have proven themselves by earning reputation can moderate the content
- Meta and Blog: to discuss about the site itself
- Software: Modified Question2Answers, with a number of (self-developed) plugins installed
- Support: admin@physicsoverflow.org
- Detailled site description in the FAQ

The Q&A section

... is meant to be a nice place where the international community of physicists, advanced students and knowledgeable enough enthusiasts can enjoy doing and learning physics together.

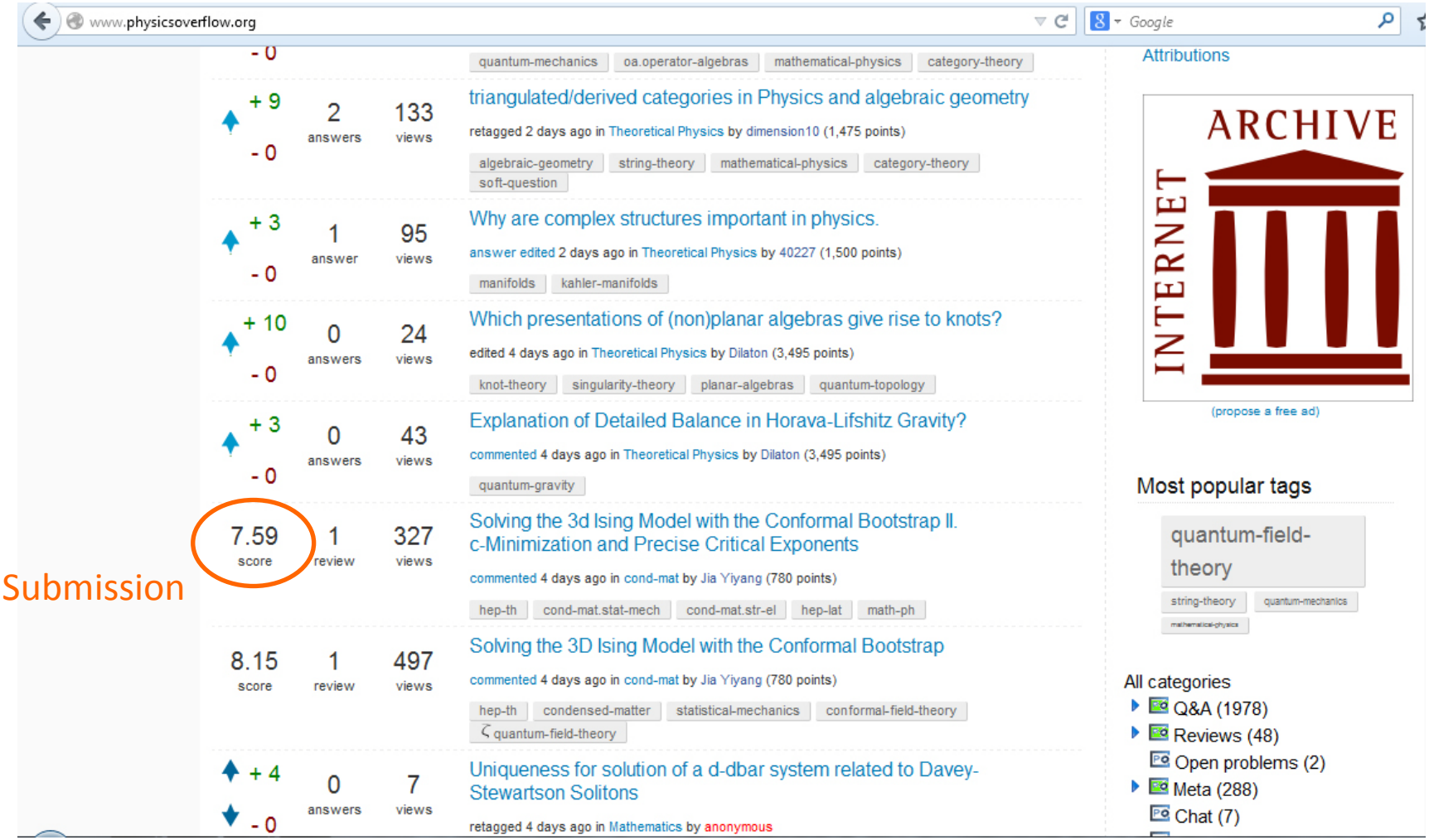
On-topic subfields:

- ✓ Theoretical physics
- ✓ Phenomenology
- ✓ Experimental physics
- ✓ Astronomy
- ✓ For physicists relevant mathematics
- ✓ Applied physics
- ✓ Computational physics
- ✓ General physics
- ✓ Community Nowiki

Off-topics:

- Engineering
- Below graduate-level physics
- Non-mainstream physics
- Copy-paste of homework
- Why is bamboo poisonous to humans but not to pandas
- Rhetorical/insincere questions

physics overflow A high-level physics Q&A site and open public peer-review system

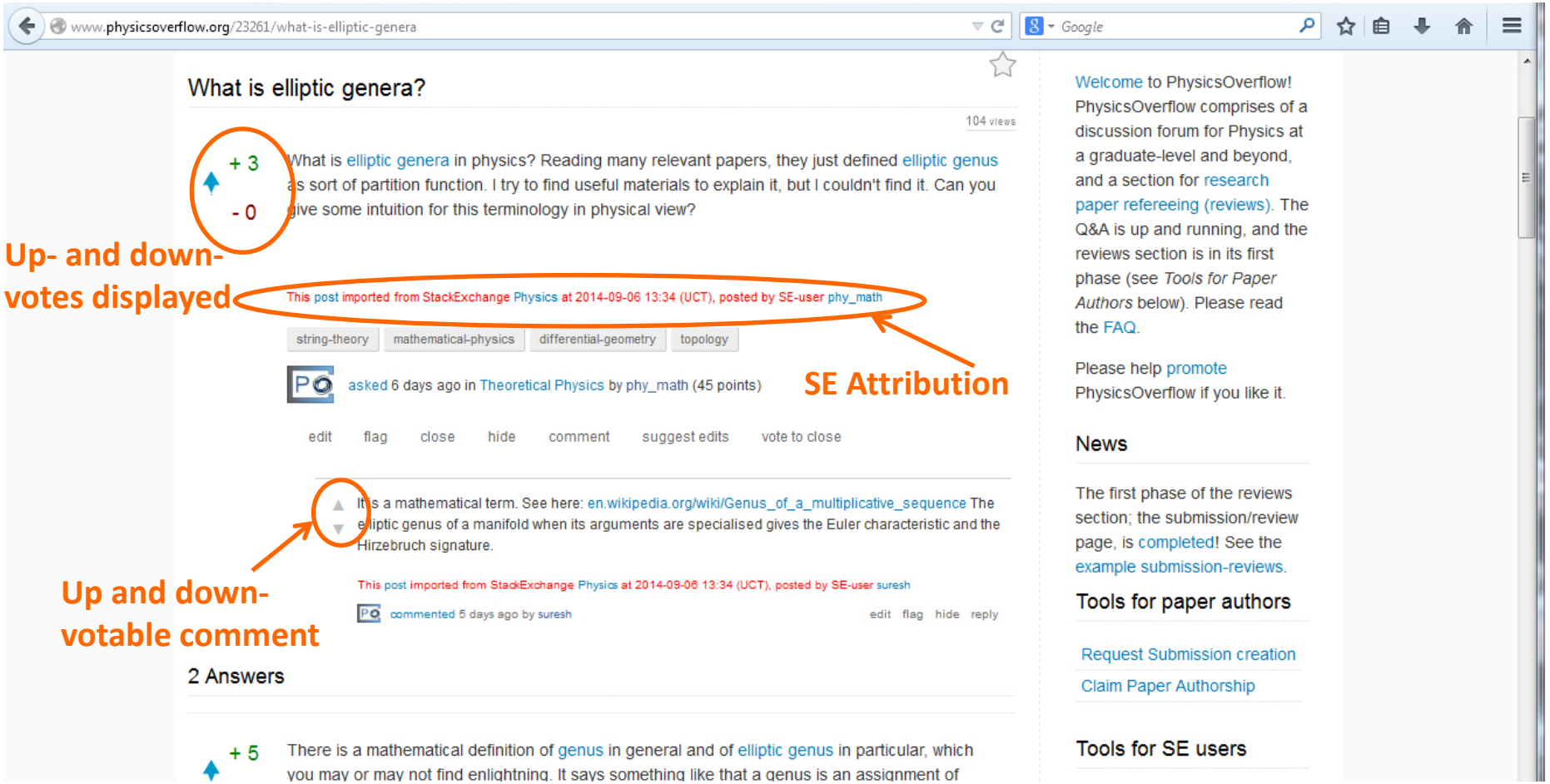


Submission

The Q&A section: How it works

- Anyone may ask an (on topic) question
- Anyone may answer, partial answers are welcome too
- Further discussion may happen in votable comments
- Votings: ±5 for questions, ± 10 for answers, comments rep neutral
- New users can register or regain access to their account, if it is already imported from a Stack Exchange site

What it looks like: an example



The reviews section

The Reviews section is intended to facilitate open and efficient public peer reviewing of papers. It is meant to nicely complement and continue what Paul Ginsparg has already achieved by launching the ArXiv.

The trouble with conventional journal peer-reviewing

- Paywalls
- Journal peer-reviewing is way to slow and inefficient
- "Sampling effect": Only the editor + 2-3 referees judge the paper:
  -> Good papers can get wrongly rejected (Higgs's paper, string theory in the 1970
  -> Nonsense gets wrongly accepted and **globally hyped (!)** by popular media channels today

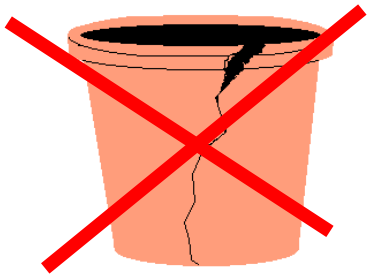
The idea of paper reviewing on PO

- Anybody may submit an ArXiv paper to PO
- Authors can claim authorship of their papers
- The author or anybody else may summarise the paper
- Anybody can vote on the originality and accuracy of the paper (from these votes a final score y is calculated)

$$y = A \exp\left(\sqrt[3]{\frac{O}{5}}\right)$$

- Anybody can (partially) review the paper and further discussions can take place in comments

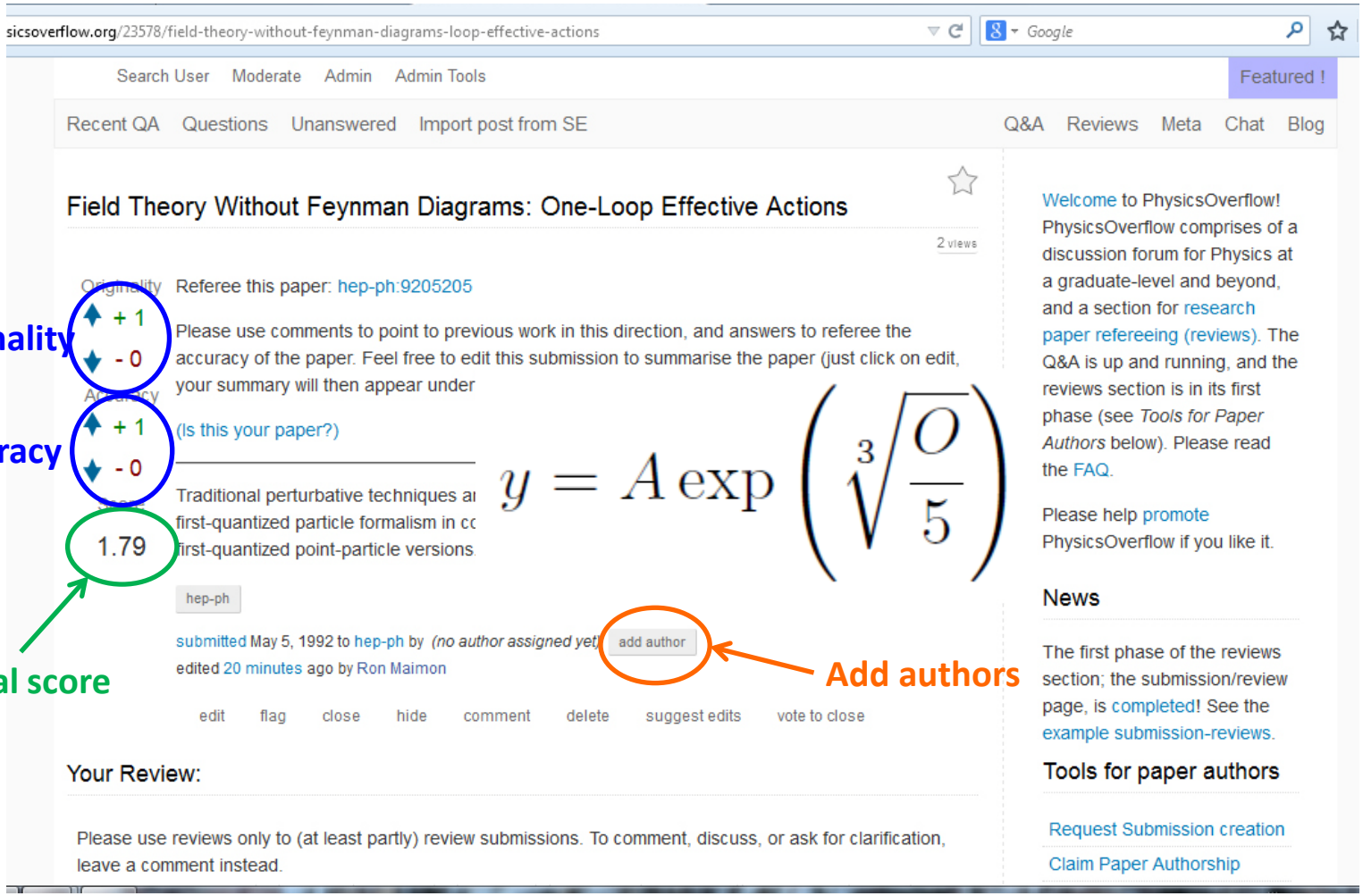
Criteria to accept a paper for reviewing on PhysicsOverflow



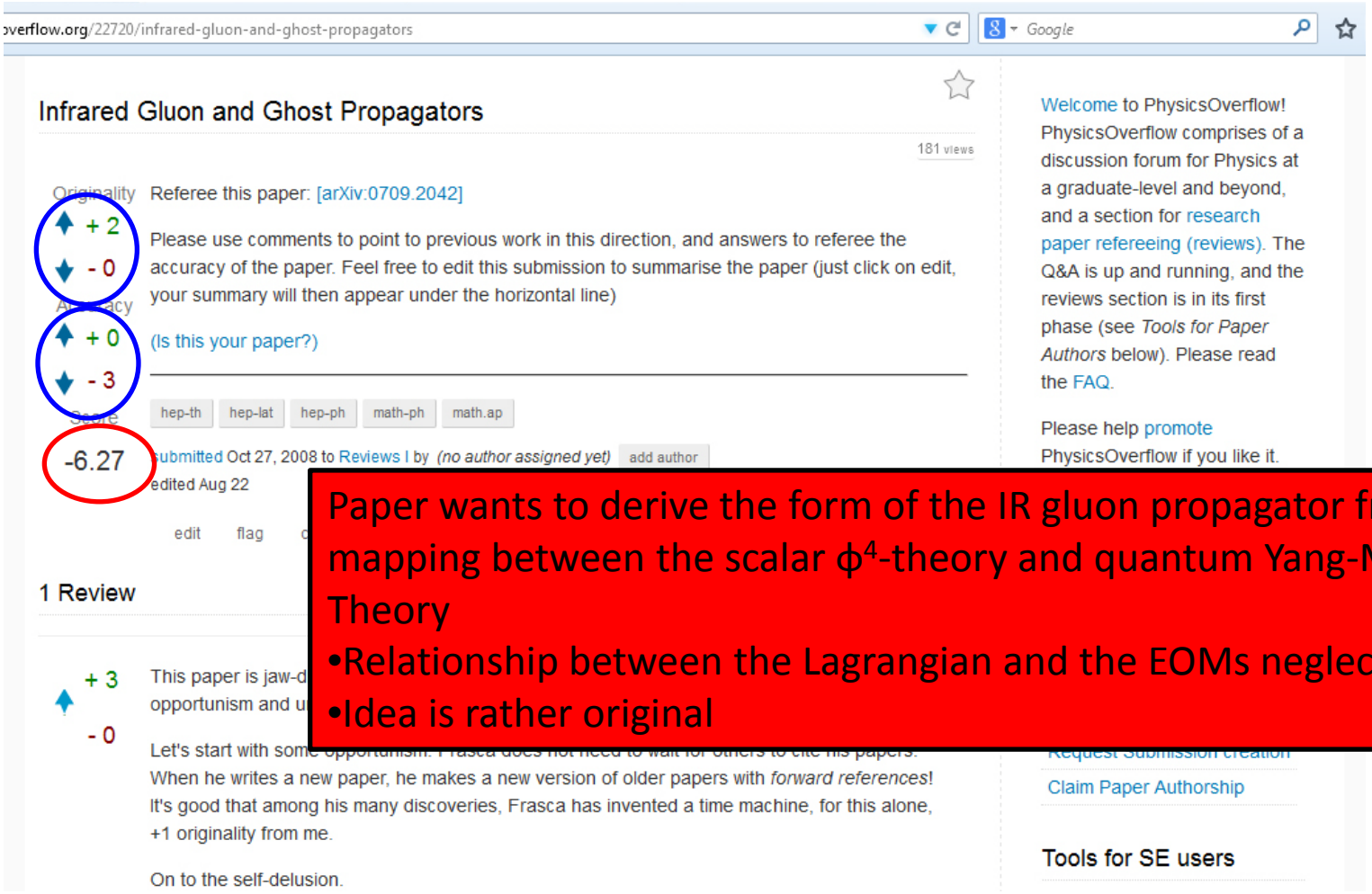
In principle, anybody can submit a paper to get a review and discussion, but we do not accept every nonsense …

„New Einsteins“, „Surfer-dudes“, „Biker-dudes“, etc who want to overthrow established physics have to back up their claims by solid theoretical and/or experimental arguments !

How a submission looks like



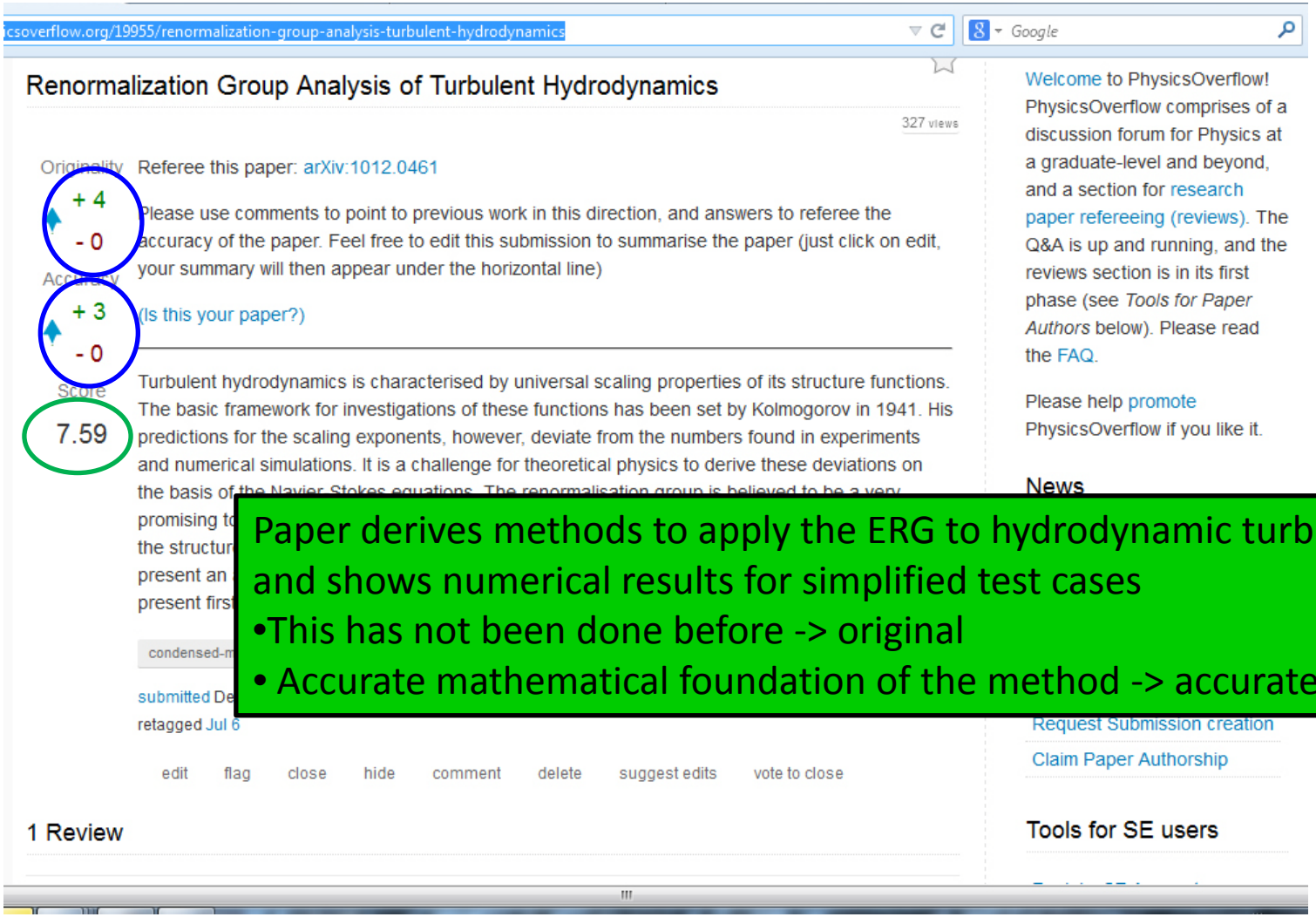
Example: a Negative Review



Paper wants to derive the form of the IR gluon propagator from a mapping between the scalar ϕ^4-theory and quantum Yang-Mills Theory

- Relationship between the Lagrangian and the EOMs neglected
- Idea is rather original

Example: a Positive Review



Paper derives methods to apply the ERG to hydrodynamic turbulence and shows numerical results for simplified test cases

- This has not been done before -> original
- Accurate mathematical foundation of the method -> accurate

Outlook

- β-state -> Full site with Reviews II and beta feature-requests fullfilled
- We need a second system developper!
- We are are also interested in help other (in particular scientific) online communities to get started by lending our software and some (initial) support
  -> (technical) collaborations ?
  An example is the idea of a PhysicsUnderflow for up to under-grad-level physics

Appendix

Community moderation by review threads ( by Mathematics SE)

Accessible to > 500 rep users:

1. List in the answers things you would like to close, reopen, undelete, delete, etc
2. People can comment and vote on these answers
3. If an answer has 3 net close, reopen, undelete, delete votes, a moderator or administrator executes the corresponding action.

Permissions and Privileges

- **Everyone:** ask, answer, comment, suggest edits
- **Registered Users:** search users, view edit history of posts
- **Registered & Email-Confirmed:** flag posts, post on user walls
- **15 Points:** vote on comments
- **25 Points:** vote on questions
- **50 Points:** vote on answers
- **500 points:** community moderation, edit directly
- **Experts and Editors:** close, reopen, and more
- **Moderators:** (un)block users, view voters and flaggers, ect
- **Administrators, Superadministrator:**
- **System Developper:** God (joking) … :-)

Differences between the SE and PO user interface

- Hierarchical system of categories in addition to tags
- Comments up- and downvotable
- Positive and negative votes displayed for everybody
- Magnitude of downvote rep changes same as changes by upvotes
- Users who contribute negatively can have negative rep
- No accepting of answers
- No autodeletion of content
- Practically infinite comment length
- @User pings always and everywhere
- Vote reversal always possible
- No rep / vote caps
- Real private (unmoderated, Big-Brother excluded) communication between users possible.

History of PhysicsOverflow?

- **2013** a group of people decided that a physics analogue of MathOverflow for graduate-level and above is needed
- **2013-09-10** Blog for systematic discussions created
- **2014-02-20 -** Technical Private Beta of PhysicsOverflow begins
- **2014-04-04 -** Public beta begins
- **2014-08-24** - The hierarchial tag system released; leading to the phase *Reviews II*. The PhysicsOverflow software development has now branched away significantly far from the Question2Answer software development.
  Currently, the **PhysicsOverflow team** consists of 1 great system developer and 4 moderators/administrators

SE company mission

High-level academic community

- **Mission:** Support the international community of professionals and students in doing and learning science
- Quality of the content counts
- Content useful for a closed spezialised community
- Focused on the community and the high-level content
- Good long-term expert users are important and highly appreciated
- Attracting the exactly right audience including known „real-world“ experts is important
- Self-governement of the community is of paramount importance

Academic cummunity

Stack Exchange Company

- **Mission:** get a clean library of Q&A useful for Googlers written by volunteering contributors
- Quantity and mass visibility
- Content useful for for an as large as possible general audience
- Only the library of Q&As useful for external Googlers counts
- Each single user is equaly unimportant and exchangable
- Stack Exchange does not care about who the users are
- Strictly prescribed network wide rules, policies, and guidelines

The joys of living outside the SE network

- No need to fullfill externally prescribed activity and mass visibility criteria (compare Area 51 statistics)
- No externally prescribed guidelines, rules, policies, etc …
- No interventions into the (daily) moderation business of the community from outer space (no external Overlords)
- No rejection of useful and feasible feature requests for dubious external to the community reasons
- No closing of questions for non-physics reasons and/or against the will of the community

In Summary: What the PO community likes and appreciates is a good thing and allowed!