Geometry of vegetation patterns: understanding patterns in dryland ecosystems and beyond

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Propositions

1. Self-organization of vegetation results in a wide variety of patterns, thereby making the ecosystem more resilient to climate change.
2. Analyzing the underlying mathematical structure of vegetation patterns underpins the understanding of the dynamics of spatial ecosystems.
3. Geometric singular perturbation theory is a powerful tool to analyze complex dynamical systems and understand their behavior, especially within ecology.
4. The geometry of slow manifolds involved can play a crucial role in the shape and nature of the patterns observed.
5. Analyzing PDE models in one spatial dimension is often a good starting point to get insight into their behavior in higher spatial dimensions and might be the main option for lack of mathematical tools.
6. Simulations can be a good first indicator of a system's behavior as well as a dangerous pitfall.
7. Interdisciplinary research allows for a cross-fertilization of both mathematics and ecology.
8. The distinction between fundamental and applied mathematics within the mathematical community does not stimulate scientific progress.
9. Academia is a reflection of our patriarchal and corporate society.
10. Working on diversity issues within academia is key to its sustainability, development and future.
11. Animals are sentient beings that should not be used by mankind in any manner.
12. Basic income should be a universal right for every human being.