

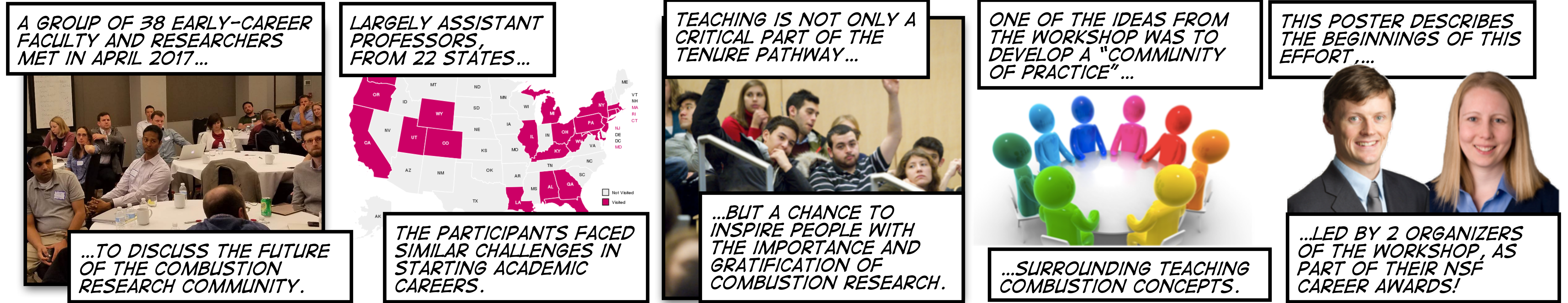
# Developing a community of practice for implementation of combustion concepts in undergraduate courses

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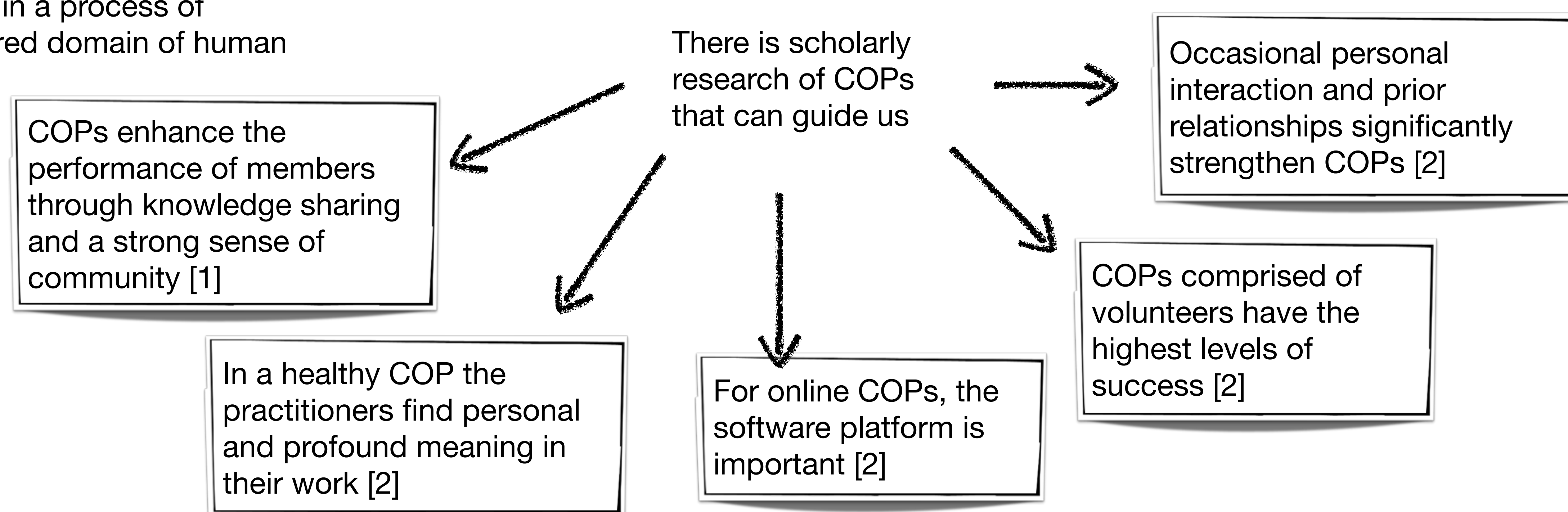
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## Communities of Practice - Building Effective Networks to Support Teaching Excellence

A Community of Practice (COP) is a group of practitioners who "engage in a process of collective learning in a shared domain of human endeavor" [1]




**Goal of the COP: To share teaching materials through an online portal to enhance teaching and introduce combustion to a wider student audience.**


## Examples of content

### Case Studies


Case studies engage students in technical topics and their broader impacts through deeper dives into time-sensitive topics.



**Pre-Class Assignments:**  
"Prime" students for new material with context of the case study



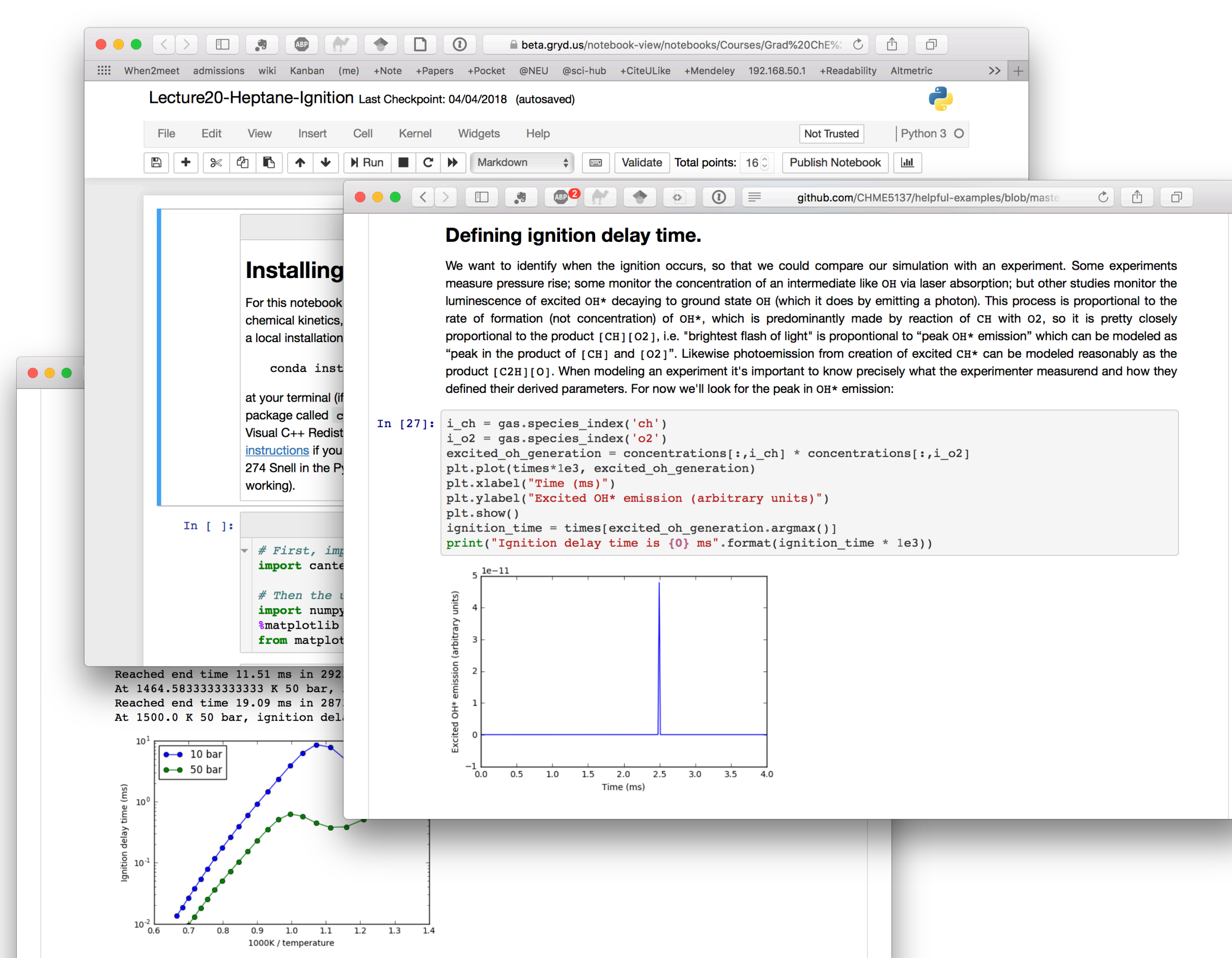
**In-class theory:**  
Class on theory related to case-study topic



**In-class discussion:**  
Broader impacts of the case study are discussed in small groups, linking to issues of ethics and society

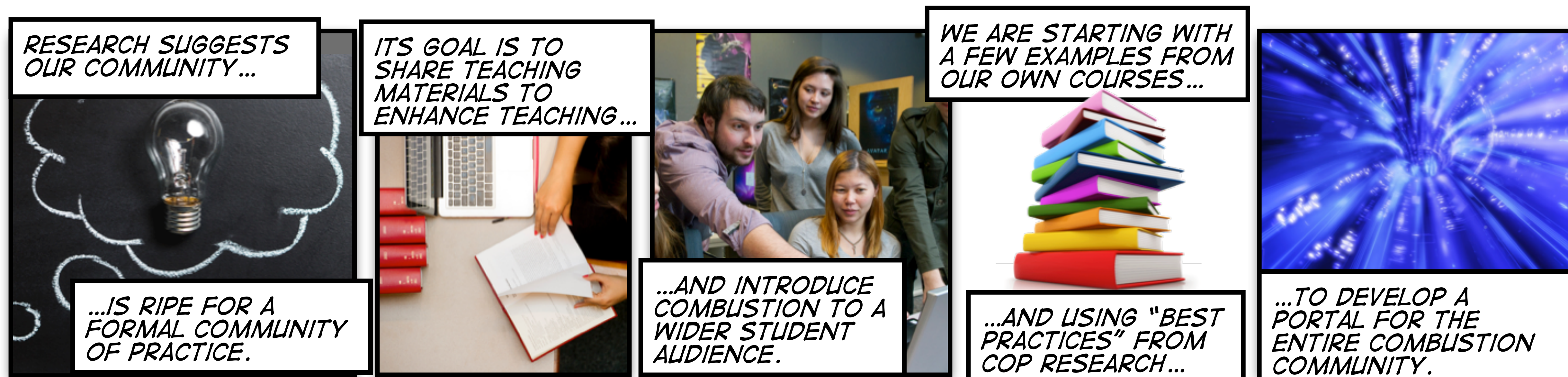
### Python Assignments

Using Jupyter Notebooks to run Cantera simulations we can introduce detailed kinetic models into an undergraduate chemical reaction engineering class.



### Educational Comics

Working with an experienced engineering education comic author we will develop a comic explaining combustion kinetics.



## References

- [1]. Wenger, E. "Communities of practice and social learning systems," Organization Vol. 7, No. 2, 2000, pp. 225-246.
- [2]. Schwen, T. M., and Hara, N. "Community of practice: A metaphor for online design?," The Information Society Vol. 19, No. 3, 2003, pp. 257-270.

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