Teaching hyperfine interactions in the 21st century

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The long term health of a research community depends on how efficiently that community attracts 'new blood': young researchers with new inspiration, who choose to devote their career to the field. The first place where we can capture the attention of these new generations, is the classroom. Indeed, many of us, present here at this conference, have been dragged into the field by an inspiring master course. Unfortunately, teaching is a topic where the hyperfine community faces an uphill battle. At many universities, courses about hyperfine interactions and nuclear methods either do not exist, or they are a small part of a larger course. At those places where a dedicated hyperfine course is offered, it is typically a niche topic that attracts rarely more than 5 or 10 students. With everyone's time being under pressure, this amount of students does not justify or motivate spending a lot of time to improve existing hyperfine courses.

Wouldn't the following be an ideal situation? Imagine you could offer to your students a course that teaches them the conceptual foundations of hyperfine interactions and of experimental methods based thereupon. A course that is engaging, and that stimulates your students (including the 'average' ones) to think deeply about these topics. A course that brings your students in contact with the modern research literature on nuclear methods. And in contact with their peers all over the world studying the same topic. A course that is sufficiently flexible to integrate it with a specialized course about the details of one specific nuclear method you might be offering. A course that smoothly adapts itself to the teaching schedule of your university. Etc.

The good news is: such a course exists. In this contribution I will describe our experience at Ghent University with the preliminary version of a course on nuclear methods that tries to realize all of the above. Expect words as flipped classroom, time- and place-independent learning, MOOC, etc. I will sketch my vision on how this material can be further developed into a course that reflects the community consensus about the basics of our field. Eventually, I will show how you can contribute to the development of this course, and how you can use this newly developed material in your own lectures.

I believe this can catalyze a community effort by which we will be able to teach hyperfine interactions and nuclear methods to far more students than we do now, in a much more engaging way, and with a fraction of the effort it would take you to develop all of this yourself. The future will show whether this will indeed lead to a surge in the number of young people interested in working in this field.

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