



# Richard Feynman Special Colloquium

November 1 & 8, 2018 at 4:10PM in Lewis Lab. 316

November 8, 2018

## **Ivan Biaggio “Moving ions in crystals, and precessing probability vectors in atoms: Feynman in solid state physics and coherent light-atom interaction”**

Feynman wrote a paper that started with “An electron in an ionic crystal polarizes the lattice in its neighborhood” and another one that started with “Electromagnetic resonances in matter have become a fundamental tool for studying the structure of matter.” Both led to new approaches used in condensed matter physics and in coherent light-matter interaction. I’ll describe the two systems that Feynman was looking at in those two papers and some subsequent work.”

## **Javier Buceta “Feynman, Cajal, and Octopuses: the Mechanisms of Seeing”**

Richard Feynman displayed scientific interests in many fields that went beyond traditional Physics. Using his own words “If you look closely enough at anything, you will see that there is nothing more exciting than the truth”. Some nice examples are shown in his celebrated Feynman Lectures such as Chapter 36, Vol.1 where he analyzed an interesting physiology problem. I will use that chapter (“Mechanisms of Seeing”) as a guideline to illustrate the broad scientific curiosity of Richard Feynman.

## **Ariel Sommer “Feynman's Computer”**

In 1981, Richard Feynman raised a provocative question: what kind of computer do you need in order to run an exact simulation of nature, including the quantum effects? He proposed that an efficient, exact simulation of quantum mechanics would require a computer made of quantum mechanical parts—a quantum computer or quantum simulator. Since then, several platforms including trapped atoms, photons, and superconducting circuits have been used to implement quantum simulators, and researchers are pushing towards the realization of universal quantum computers.