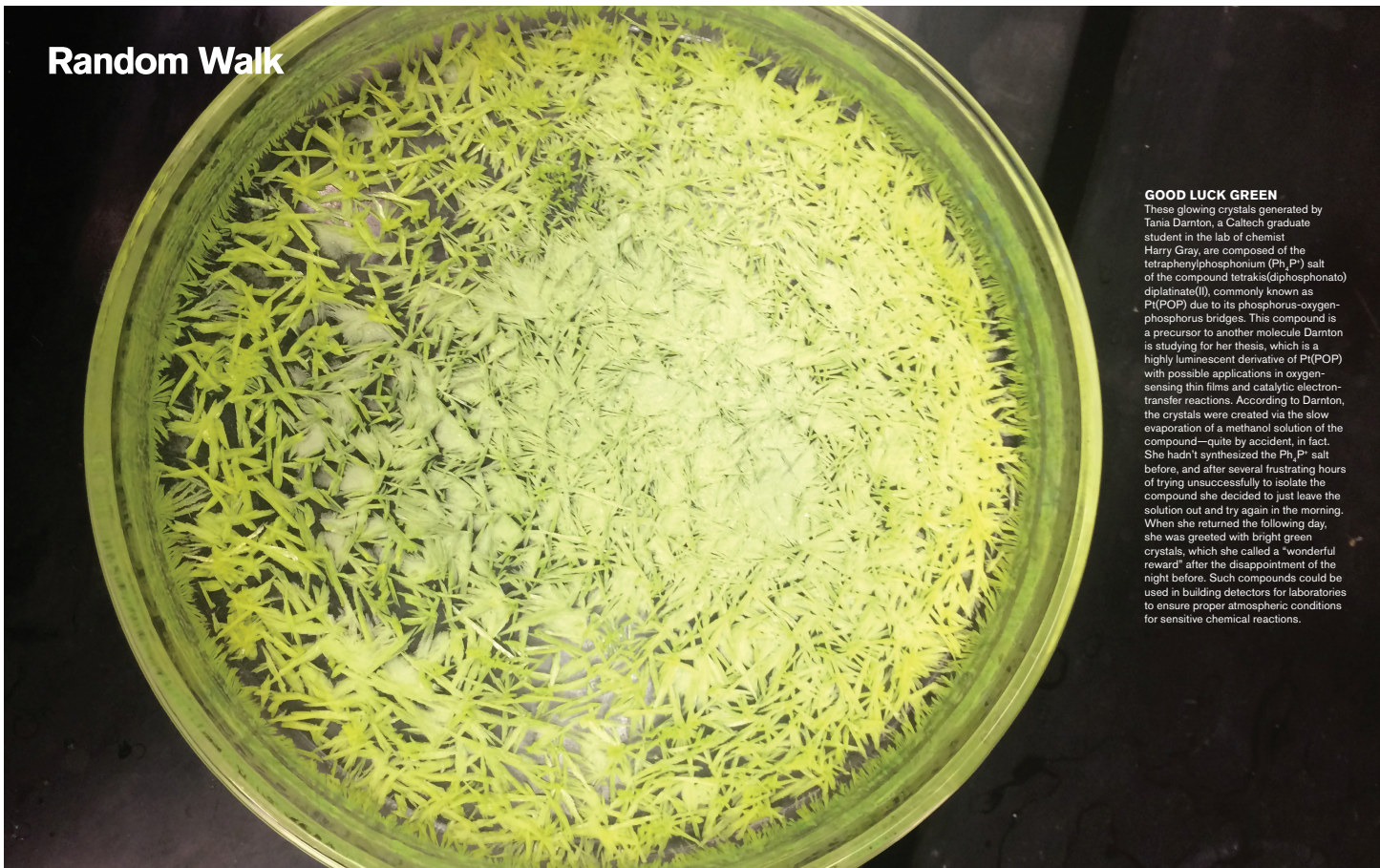


## Random Walk



### GOOD LUCK GREEN

These glowing crystals generated by Tania Darnton, a Caltech graduate student in the lab of chemist Harry Gray, are composed of the tetraphenylphosphonium ( $\text{Ph}_4\text{P}^+$ ) salt of the compound tetrakis(diphosphonato) diplatinate(II), commonly known as  $\text{Pt}(\text{POP})$  due to its phosphorus-oxygen-phosphorus bridges. This compound is a precursor to another molecule Darnton is studying for her thesis, which is a highly luminescent derivative of  $\text{Pt}(\text{POP})$  with possible applications in oxygen-sensing thin films and catalytic electron-transfer reactions. According to Darnton, the crystals were created via the slow evaporation of a methanol solution of the compound—quite by accident, in fact. She hadn't synthesized the  $\text{Ph}_4\text{P}^+$  salt before, and after several frustrating hours of trying unsuccessfully to isolate the compound she decided to just leave the solution out and try again in the morning. When she returned the following day, she was greeted with bright green crystals, which she called a "wonderful reward" after the disappointment of the night before. Such compounds could be used in building detectors for laboratories to ensure proper atmospheric conditions for sensitive chemical reactions.