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Improved Synthesis of Bechgaard Salts JACOB LEWIS, JEREMY QUALLS, Sonoma State University — Many advances in material science are often impeded by sample quality. This is especially true for low dimensional organic conductors where low lying ground states can be completely masked by poor sample quality. The purpose of our work is to increase the sample quality of a set of materials that had previously been heavily studied to gain access to a region thought inaccessible. In this work our target systems are the Bechgaard Salts $(TMTSF)_2ClO_4$ and $(TMTSF)_2PF_6$. These systems have very interesting behaviors that occur at helium base temperatures and continue to be the topics of many research groups and publications. The nature of the transport mechanism and formation of density waves at low temperatures are of great interest but these states are fragile. A single x-ray crystallographic measurement will introduce enough defects that the low temperature ground states never form. We are looking at three target areas of growth including proper exclusion of water, reduction of vibrations, and continuous availability of electrolytes during growth. In this talk we will discuss what advances we have made and what kind of ground state behavior we are hoping to find.

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