# Bayesian Optimization with Know-How Transfer for Perovskite Solar Cells

## Introduction

Challenges in Objectives:

1. Process Optimization
   1. Old baseline (but there are different processes leading to new optimization: humidity; Big change: Spinning to Blade coating; ….)
2. Materials Selection
   1. Additives Materials in literature for CsMAFAPbI3

Now in our lab we need to optimize: CsMAFAPbBrI3

How do we optimize?

1. Theory Guided Optimization
   1. For example, we know some equations about crystallization vs temperature

How do we use this to guide our optimization in lab?

How can I help using BO with knowledge transfer?

Tasks:

1. What the current paper didn’t do? Capability limitation or just they didn’t apply in perovskites
2. What is the new development needed to achieve the objectives/case studies above?
3. What will be the final demonstration? E.g., Efficiency Improvement, or fewer samples are needed to get to the optimum.
4. 初始选点问题：lhs选点，设置半径选点，再去尝试
5. 尝试整个模型比较
6. 就用rank-weight，把一维跑通
7. 二维初试选点太多了。
8. 多读其他迁移学习论文