

Increasing  
Organic Photovoltaic (OPV)  
Efficiency

David Nakazono, Physics

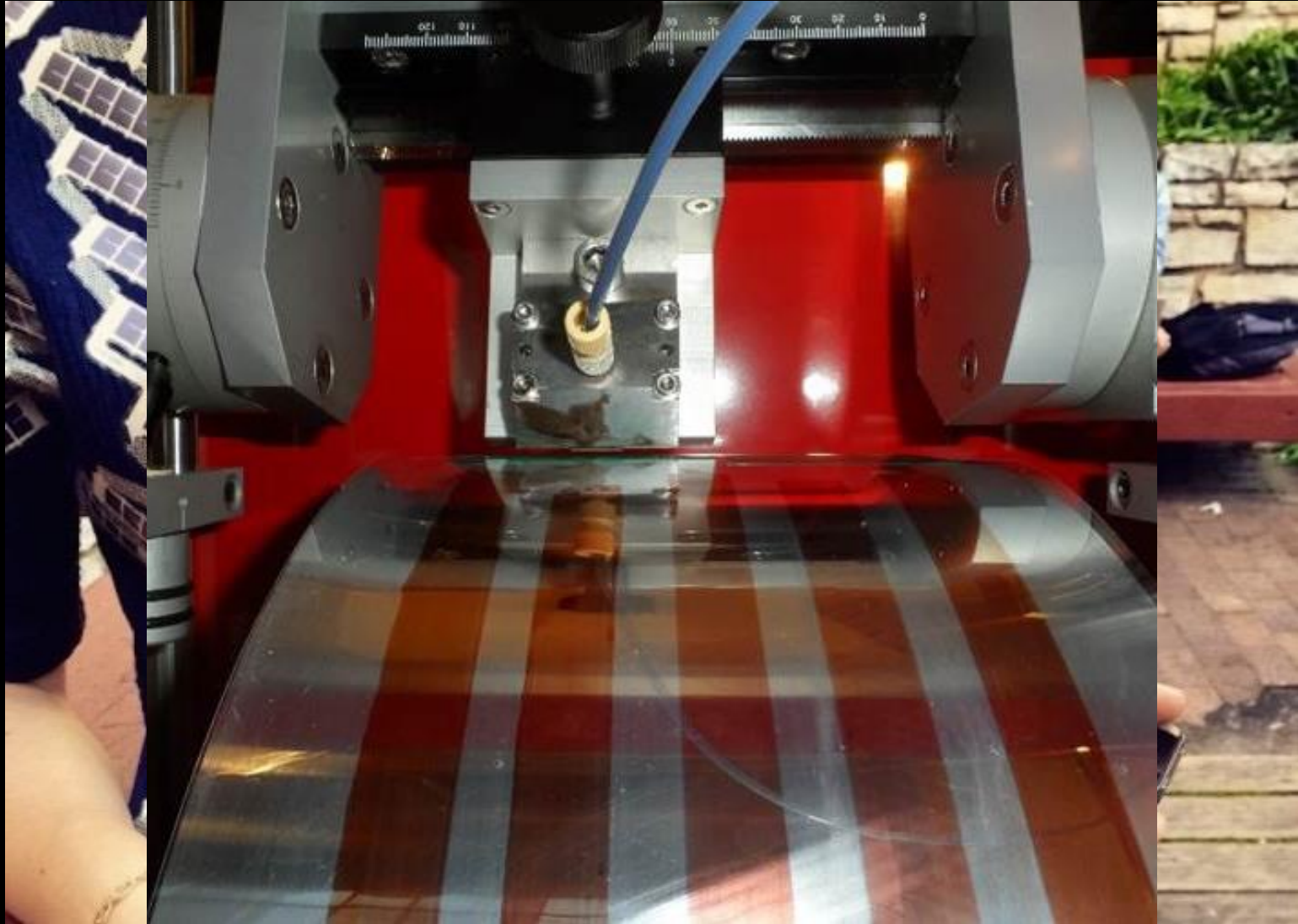
Ryan Decrescent, Physics

Jon Schuller, ECE

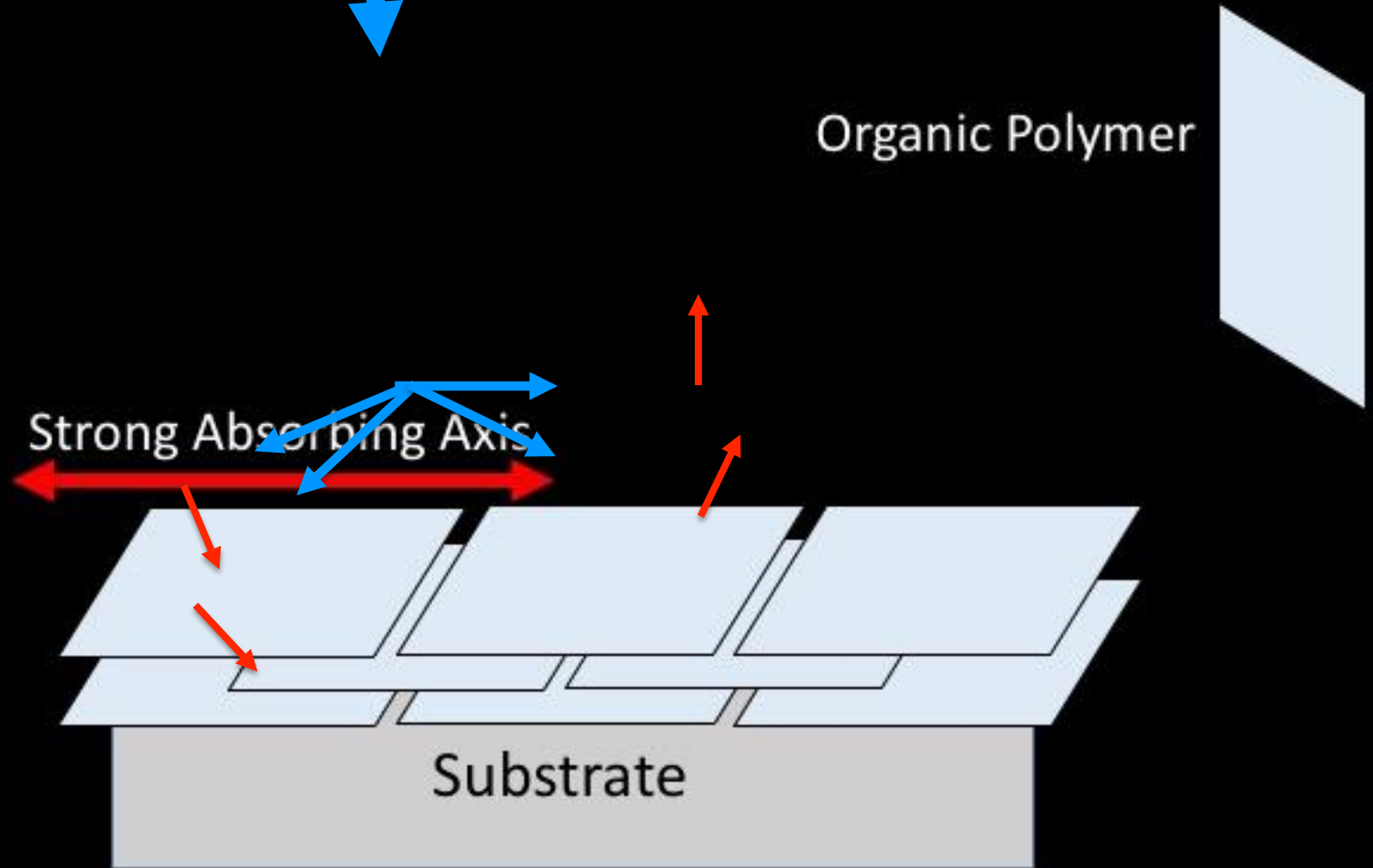
# What is a photovoltaic cell?



# Why Organic Photovoltaics (OPVs)?



# Multiplanar Orientation of Organic Polymers



# Momentum-Resolved Surface Plasmon Resonance

Dielectric

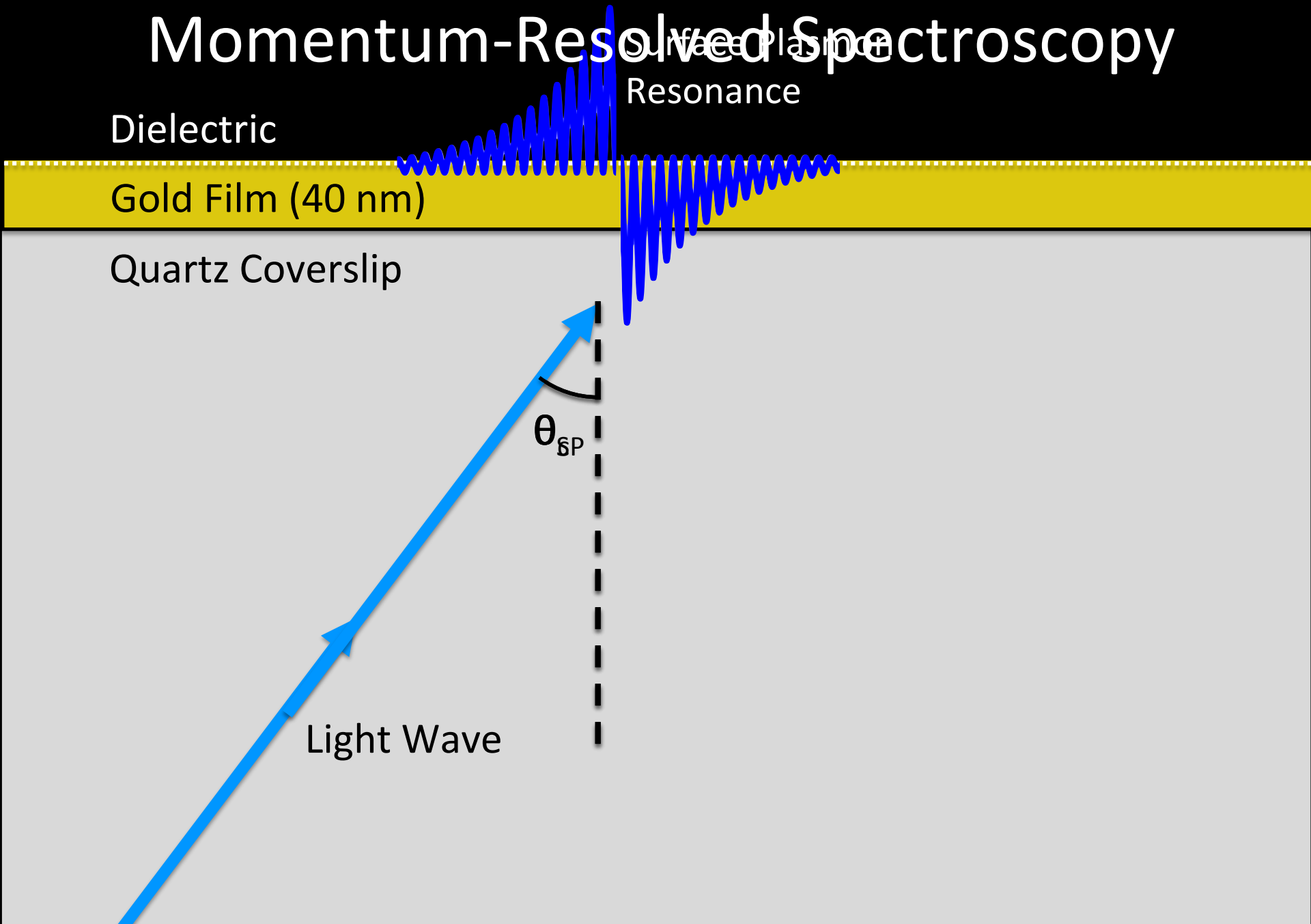
Gold Film (40 nm)

Quartz Coverslip

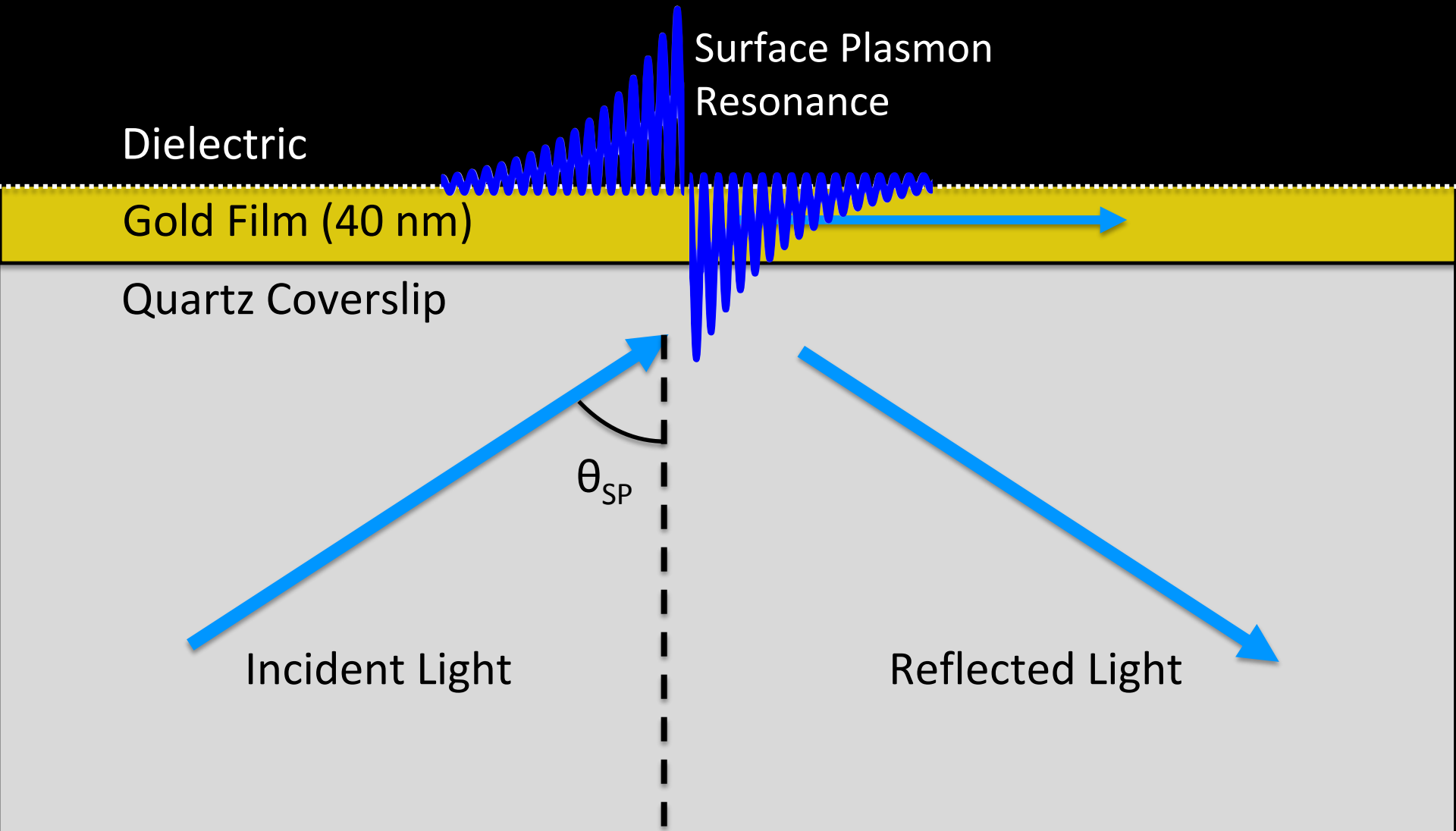
Surface Plasmon Resonance

Light Wave

$\theta_{SP}$



# Measuring Reflectivity



Dielectric

Gold Film (40 nm)

Quartz Coverslip

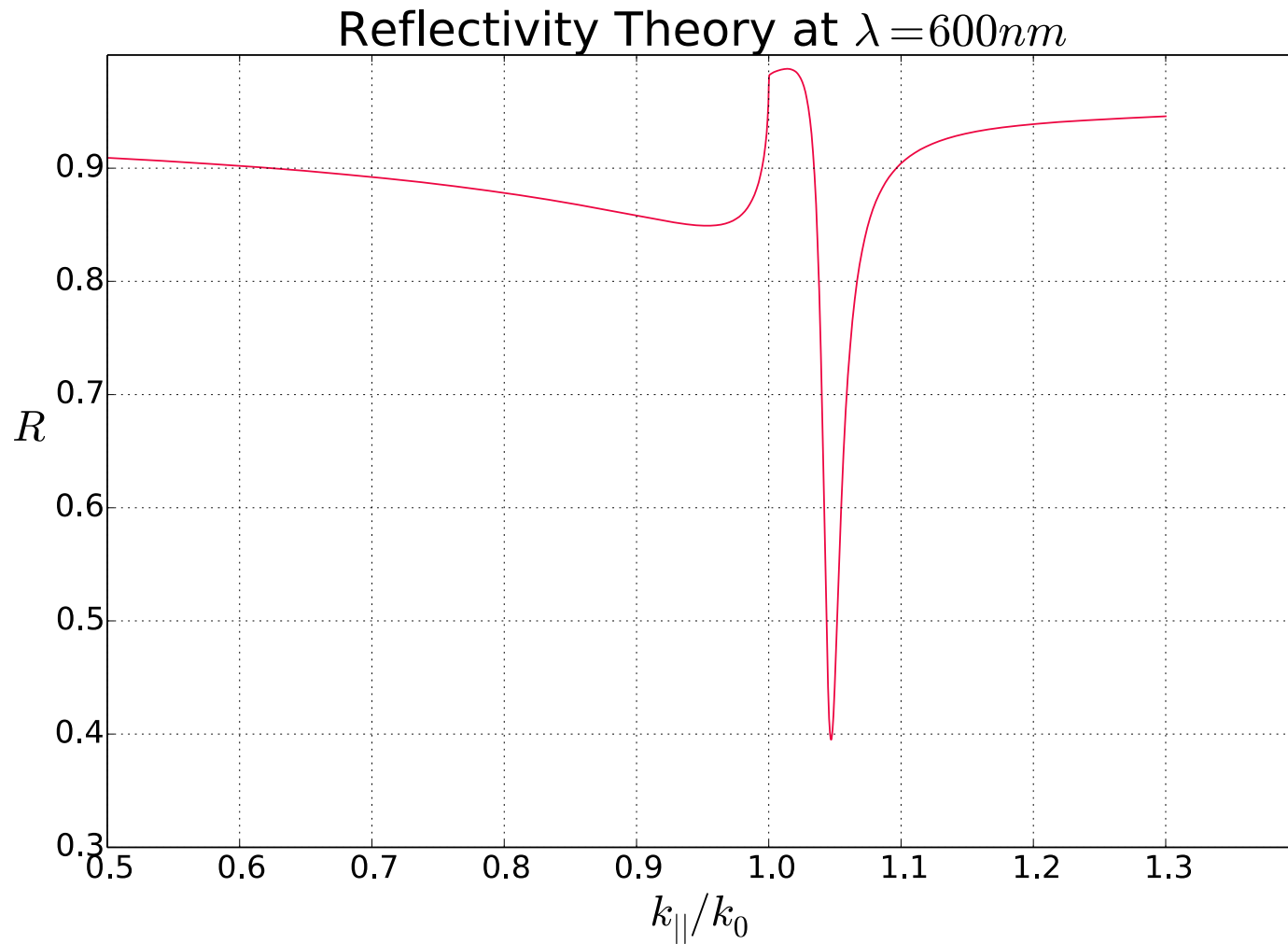
Surface Plasmon Resonance

Incident Light

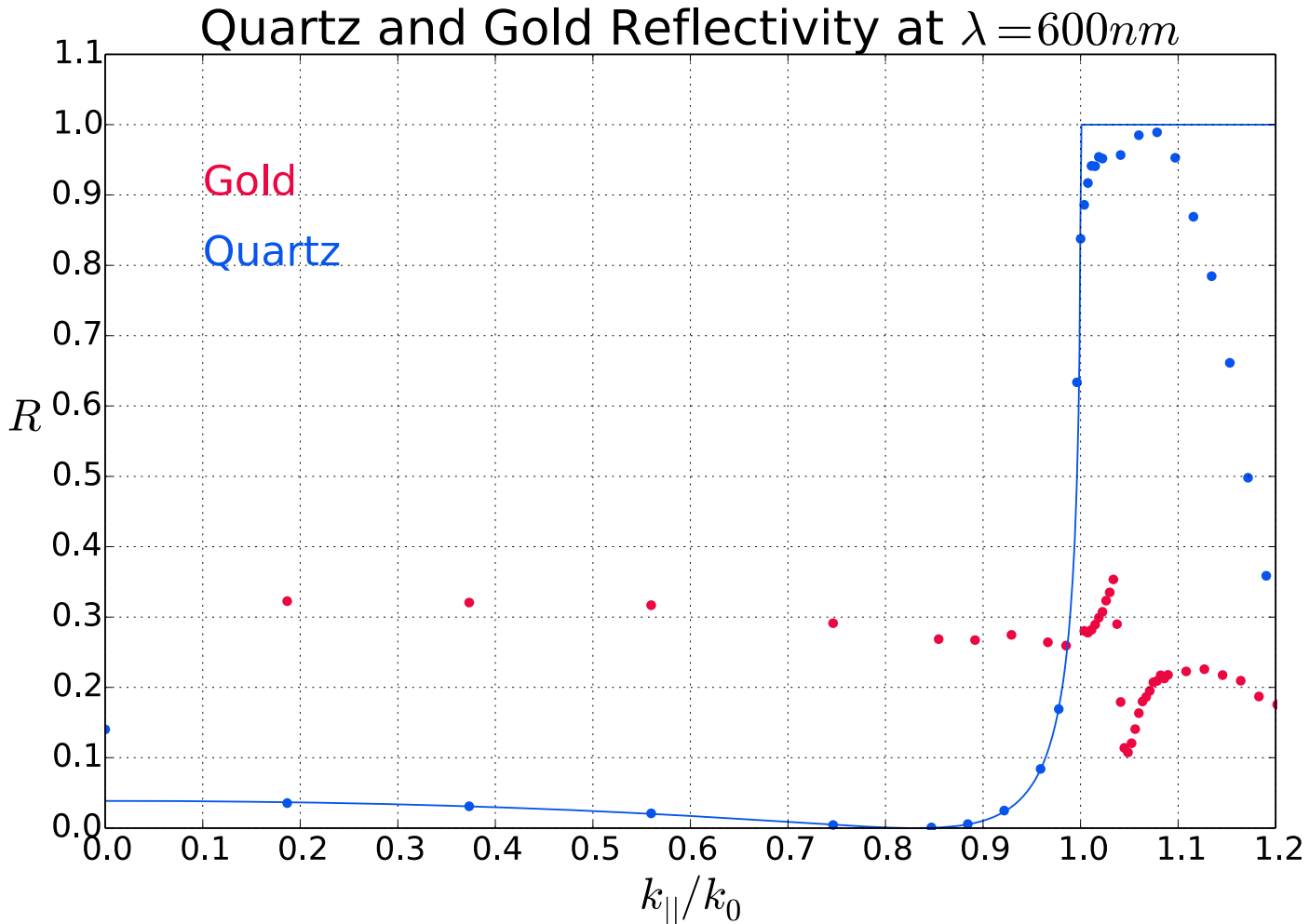
Reflected Light

$\theta_{SP}$

# Modeling Experiment

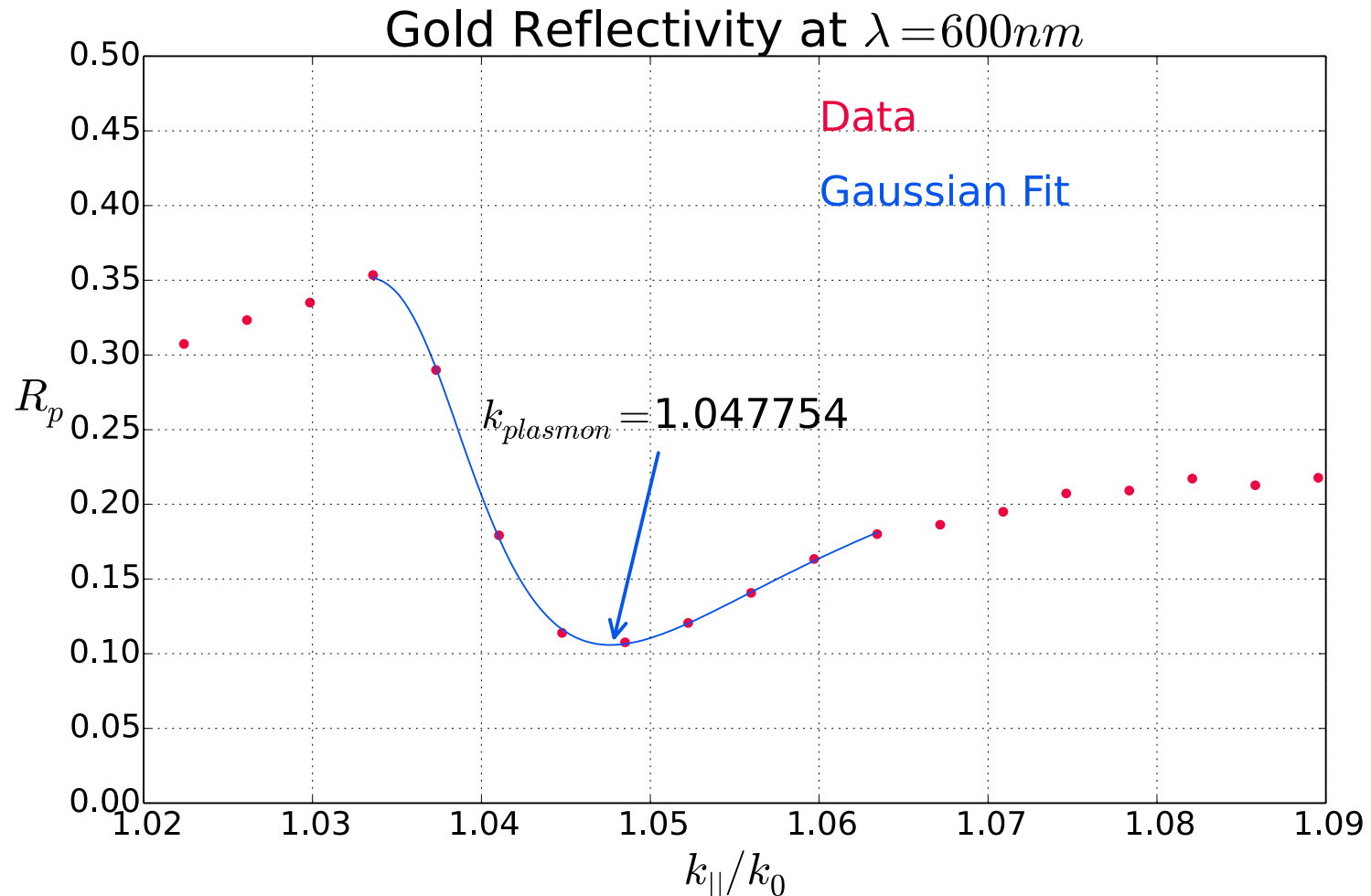


# Reflectivity Measurements

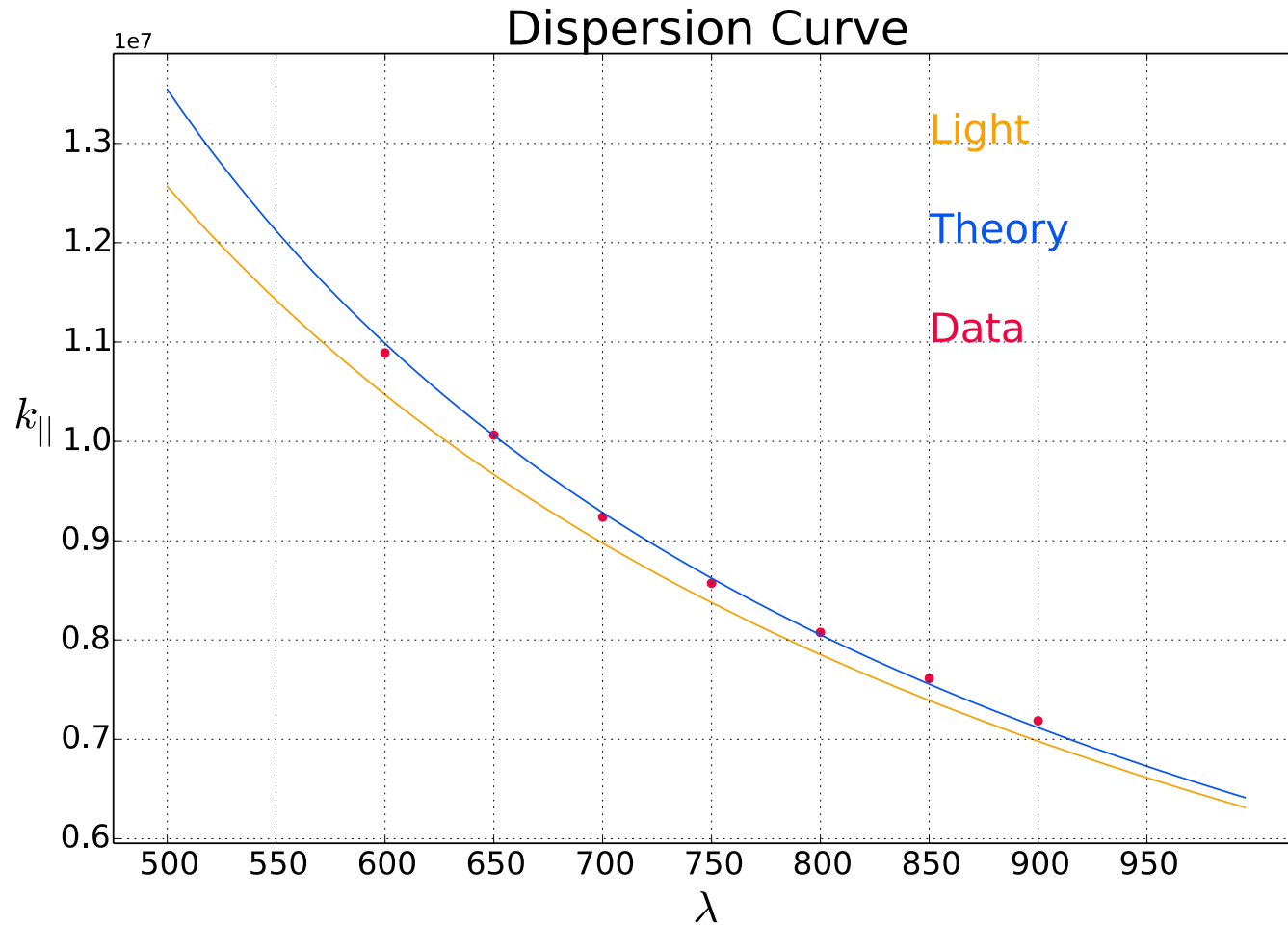




# Locating Plasmon Resonance



# Dispersion Relation for Gold Film



# Characterizing Organics

- H1 Histone- organic polymer
- In-plane and Out-of-plane orientations
- Demonstrate viability of optimizing orientation to enhance OPV efficiency

# Acknowledgements

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