# PARADIM:

## **P**latform for the **A**ccelerated **R**ealization, **A**nalysis, and **D**iscovery of **I**nterface **M**aterials

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Clark Atlanta University | Cornell University | Johns Hopkins University | Princeton University

PARADIM

An NSF Materials Innovation Platform

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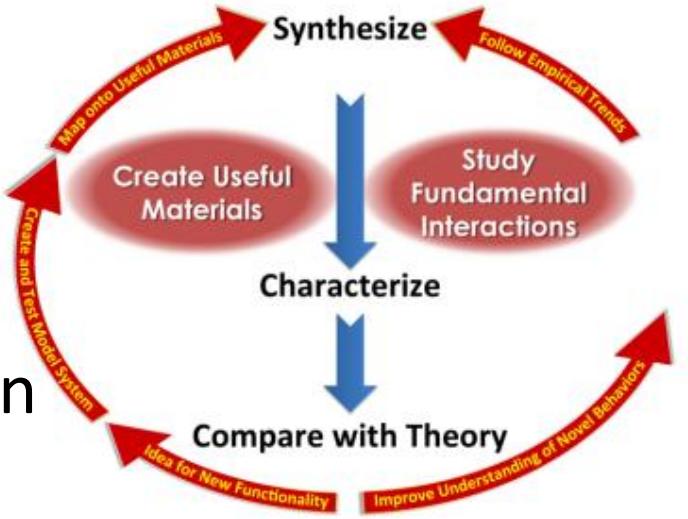
NSF

# PARADIM




- A new NSF funded **Platform** for Materials by Design
- Advanced resources for **New Interface Materials** by design
  - Research at Clark Atlanta, Cornell, Johns Hopkins, & Princeton
  - User Facilities at Clark Atlanta, Cornell, & Johns Hopkins
- Accelerating the pace at which new Interface Materials for the Next Generation of Electronics are designed, realized experimentally, and measured
  - Valleytronics, Spintronics, Multiferroics

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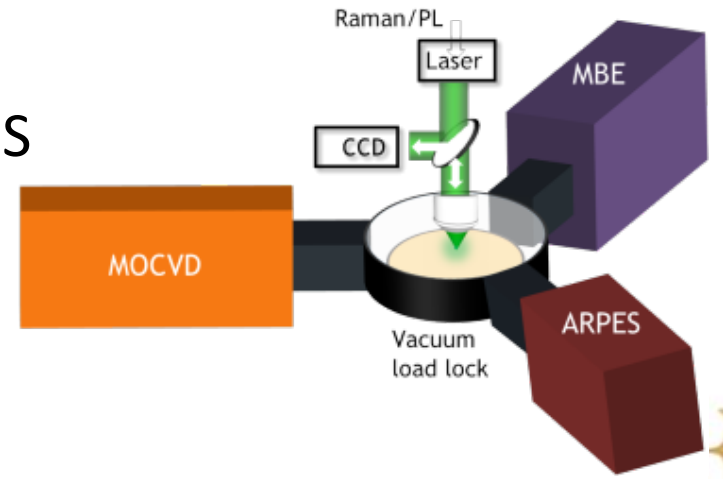
# **PARADIM** User Facilities for New Interface Materials

- Bulk Crystal Growth at Johns Hopkins — **Available Now**
- Electron Microscopy at Cornell — **Available Now**
- Theory/Simulation at Clark Atlanta — **Available Now**
- Support Facilities at Cornell and Johns Hopkins — **Available Now**
- Thin Film Growth at Cornell — **Available 4Q2016 & 2Q2017**
  - Standalone MOCVD
  - Integrated MBE/MOCVD/ARPES
  - Over 60 elemental sources

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# Open User Access

- User facilities available via reviewed proposal process
  - No charge to U.S. academic users
  - Available to non-academic and foreign users via recharge process
- Equipment Access and Staff Support
- Proposals now being accepted
- Scope limited to **New Interface Materials by Design**

# In House Research Program


Cornell University

JOHNS HOPKINS
UNIVERSITY

PRINCETON
UNIVERSITY

- Creating <u>Interface Materials for Valleytronics</u>
  - Control of electrical, optical and magnetic properties by manipulating the valley degree of freedom
  - Controlling the valley phenomena by using complex oxides as active substrates