

# OHIO'S LARGEST INDUSTRY MOVES TO THE **NANO** LEVEL

The logo for the Center for Multifunctional Polymer Nanomaterials and Devices (CMPND). It features the acronym "CMPND" in a bold, italicized font with a green-to-blue gradient. A blue underline is positioned below the text.

*Center for Multifunctional Polymer  
Nanomaterials and Devices (CMPND):  
A Wright Center of Innovation*



## **Research Collaborators**

**University of Toledo**

**Kent State University**

**Wright State University**

**Air Force Research  
Laboratory**

**NASA Glenn**

**Battelle**

**National Composite  
Center**

**Ohio Edison Centers**

# Brief History

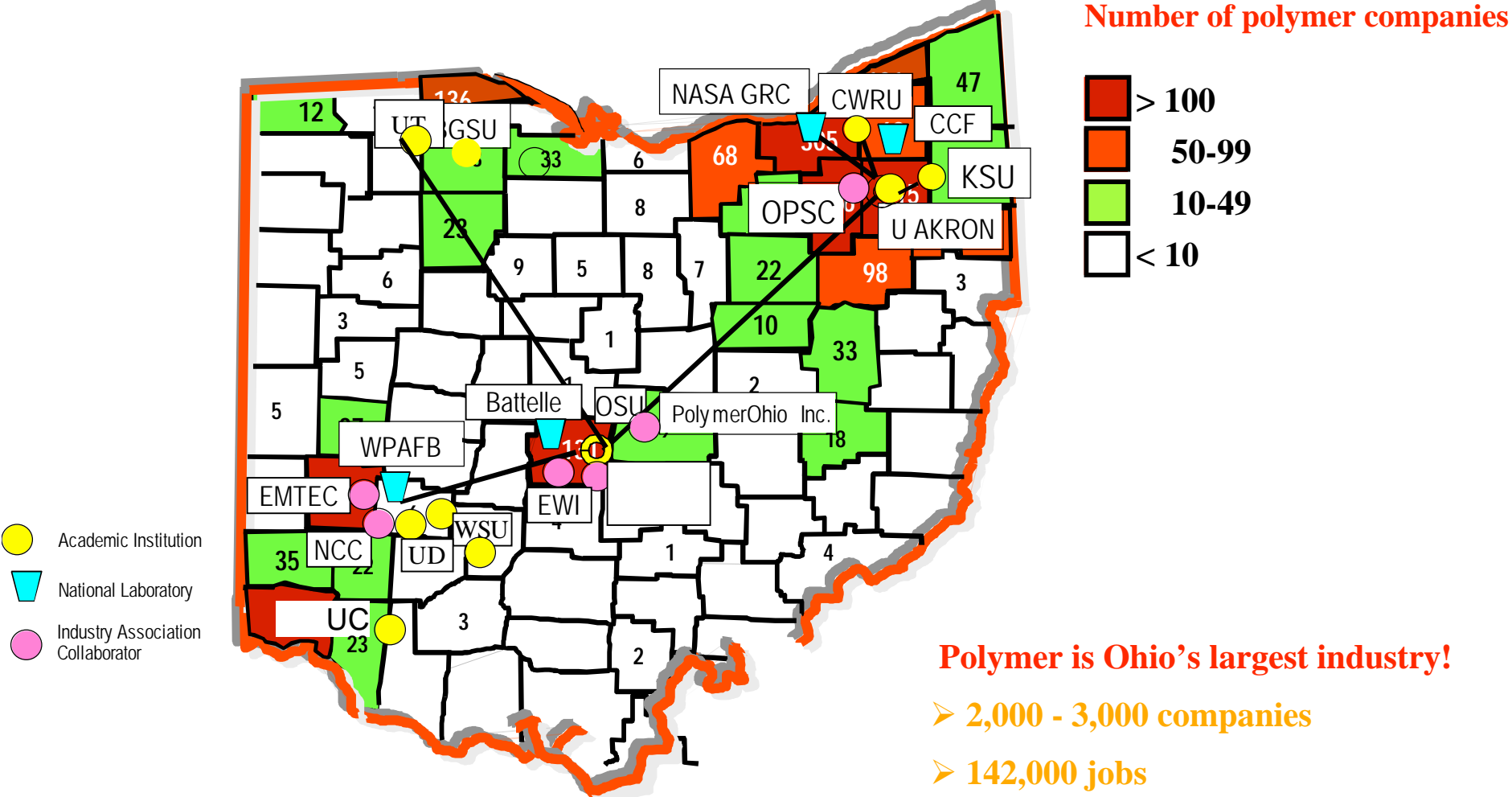
**Polymer is Ohio's largest industry, but needs new opportunities to grow!**

**Ohio ranks # 1**

- ✓ **2,800+ companies**
- ✓ **142,000+ jobs**
- ✓ **\$49 billion in shipments in 2002**
- ✓ **5~10% growth rate in the past**

**Ohio companies are seeking solutions in nanotechnology!**

# Ohio is ranked #1 for its Polymer Industry



**Polymer is Ohio's largest industry!**

➤ 2,000 - 3,000 companies

➤ 142,000 jobs

➤ \$49 billion in shipments in 2002

# Nanotechnology

- The science of creating materials and products at the **molecular** level.
- Allows products to have **enhanced** performance features.
- By adding these performance features to existing products manufactured in Northeast Ohio, we are creating **competitive** new products.

# Products: Polymeric Nanocomposites



Housing/  
Consumer

- High Performance
- Light Weight



Energy Saving  
Environmental Protection

Industrial Driven, Near-term Applications

Automotive

Aerospace



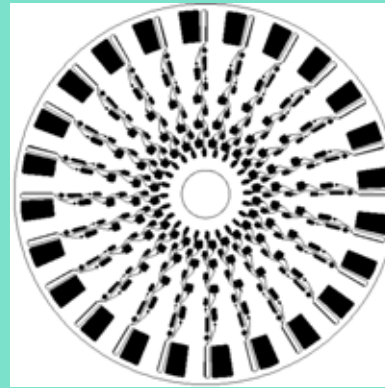
# Products: Biomedical Devices

Revolution of Medical  
Diagnosis and Medicine



Next Generation of  
Health Care

Medical  
Diagnostics



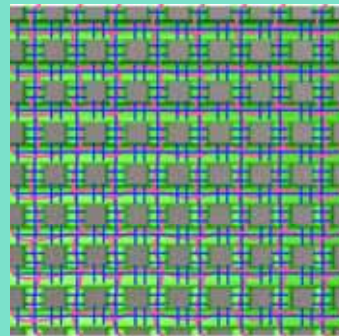
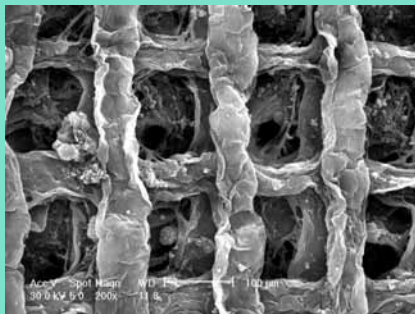
Lab-CD



Innovation Driven, Long-term Applications

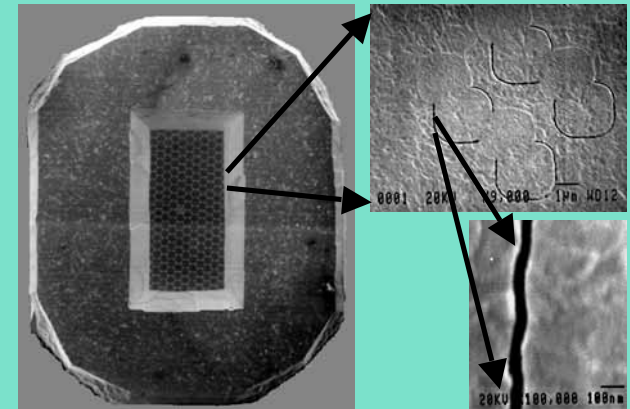
Drug  
Delivery  
Devices

Tissue  
Engineering  
Scaffolds



Tissue Engineering Scaffolds

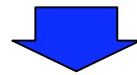
Immunoisolation  
Biocapsule



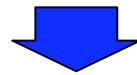
**NANO**technology may  
ultimately be applied in nearly  
**everything** we use in our lives.

# **CMPND Is the **Missing Link** Needed for Creating New Products and New Companies.**

**Basic Research**



**CMPND**



**Material Suppliers  
Manufactures**



**Customers**

# Economic Impact of CMPND by 2010

## Northeast Ohio

- Over 20,000+ jobs affected
- Collaborator inputs
  - \$1-2B+ projected
  - 1700+ new jobs in current companies
  - Expect 12,000+ in retain/upgrade skilled labor jobs in existing companies
  - 1000 new jobs of material & device suppliers
  - Over 250 new jobs in design, build and engineering companies
  - 10-15 new bio companies create 500-750 jobs
  - Multiplier factor on new adds 2500 support jobs