

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING FENN HALL CHEMICAL ENGINEERING LABORATORIES



Original Fenn College of Cleveland  
Engineering Building was  
Stilwell Hall (Now Fenn Hall)  
The beginnings of the  
Cleveland State University

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING FENN HALL CHEMICAL ENGINEERING LABORATORIES



“Learning the Trade” Sculpture:  
John D. Hubbard, PE donor  
Paul Tadlock artist

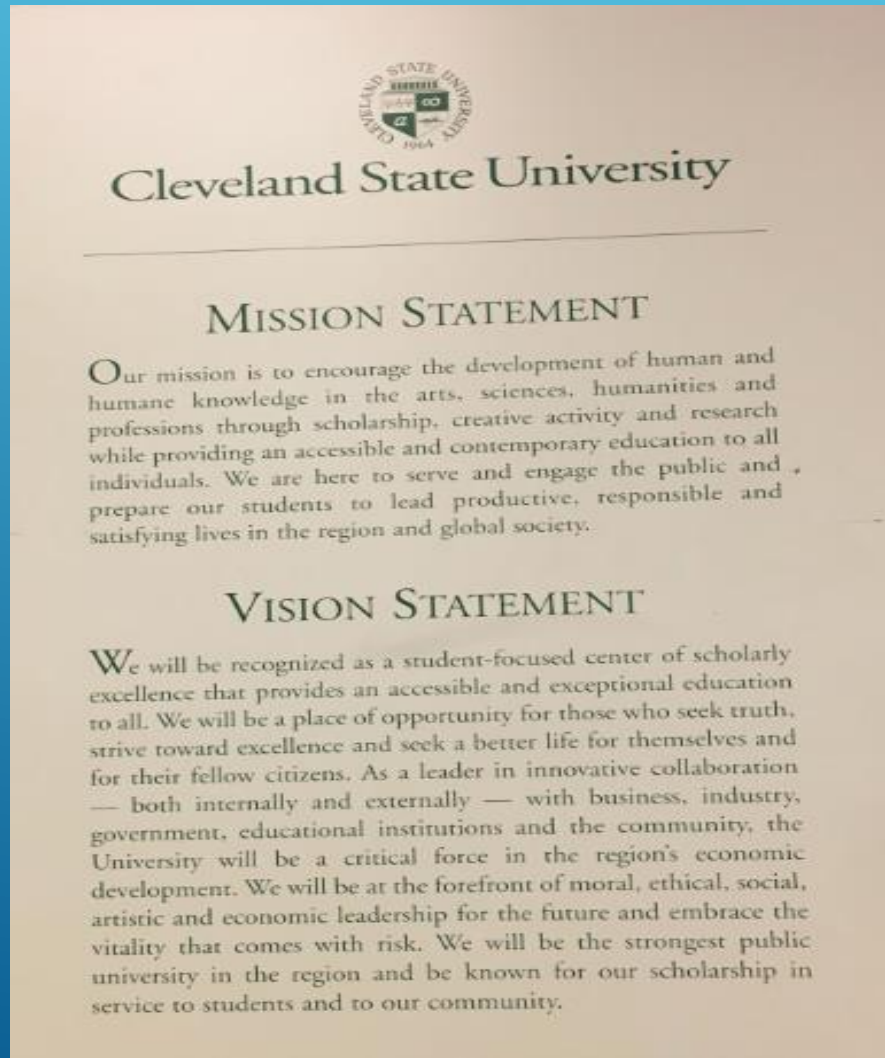


# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING FENN HALL CHEMICAL ENGINEERING LABORATORIES



Chemical Engineering Unit Operations Lab  
Entrance and Lab Upgrade Sponsored by:  
The Lubrizol Foundation

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING FENN HALL CHEMICAL ENGINEERING LABORATORIES



Cleveland State University  
Mission Statement and  
Vision Statement

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING FENN HALL CHEMICAL ENGINEERING LABORATORIES



Fluid Flow Unit Operations Lab Apparatus



# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING FENN HALL CHEMICAL ENGINEERING LABORATORIES



Fluid Flow Unit Operations Lab Apparatus

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Fluid Flow Unit Operations Lab Apparatus

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING FENN HALL CHEMICAL ENGINEERING LABORATORIES



Packed Distillation Column  
Unit Operations Lab Apparatus



# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING FENN HALL CHEMICAL ENGINEERING LABORATORIES



Bubble Cap Column Distillation  
Unit Operations Lab Apparatus

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING FENN HALL CHEMICAL ENGINEERING LABORATORIES



Liquid Liquid Extraction Process  
Unit Operations Lab Apparatus



# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING FENN HALL CHEMICAL ENGINEERING LABORATORIES



Liquid Liquid Extraction Process  
Unit Operations Lab Apparatus

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING FENN HALL CHEMICAL ENGINEERING LABORATORIES



Fluid Flow Unit Operations Lab Apparatus



# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING FENN HALL CHEMICAL ENGINEERING LABORATORIES



Filtration Unit Operations Lab Apparatus

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING FENN HALL CHEMICAL ENGINEERING LABORATORIES



Heat Transfer Unit Operations Lab Apparatus



# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING FENN HALL CHEMICAL ENGINEERING LABORATORIES



Mixing Unit Operations Lab Apparatus

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING FENN HALL CHEMICAL ENGINEERING LABORATORIES



Agitation Unit Operations Lab Apparatus



# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE I



Dedication and Grand Opening for  
Washkewicz Hall

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE I

## ***ChBME in Washkewicz Hall***

### ***Phase I: January 2018***

- ***Freshman Design lab***
- ***Computer labs***
- ***Seminar room and classrooms***
- ***Biomedical Design Project***
- ***Maker Space***

### ***Phase II: Opens January 2019***

- ***Cell Culture Instructional lab***
- ***Biomedical Instrumentation Instructional lab***
- ***Soft Materials core lab***
- ***Biomedical Engineering core lab***
- ***Research labs for Drs. Kothapalli, Lee, Holland, Ao, Wirth***

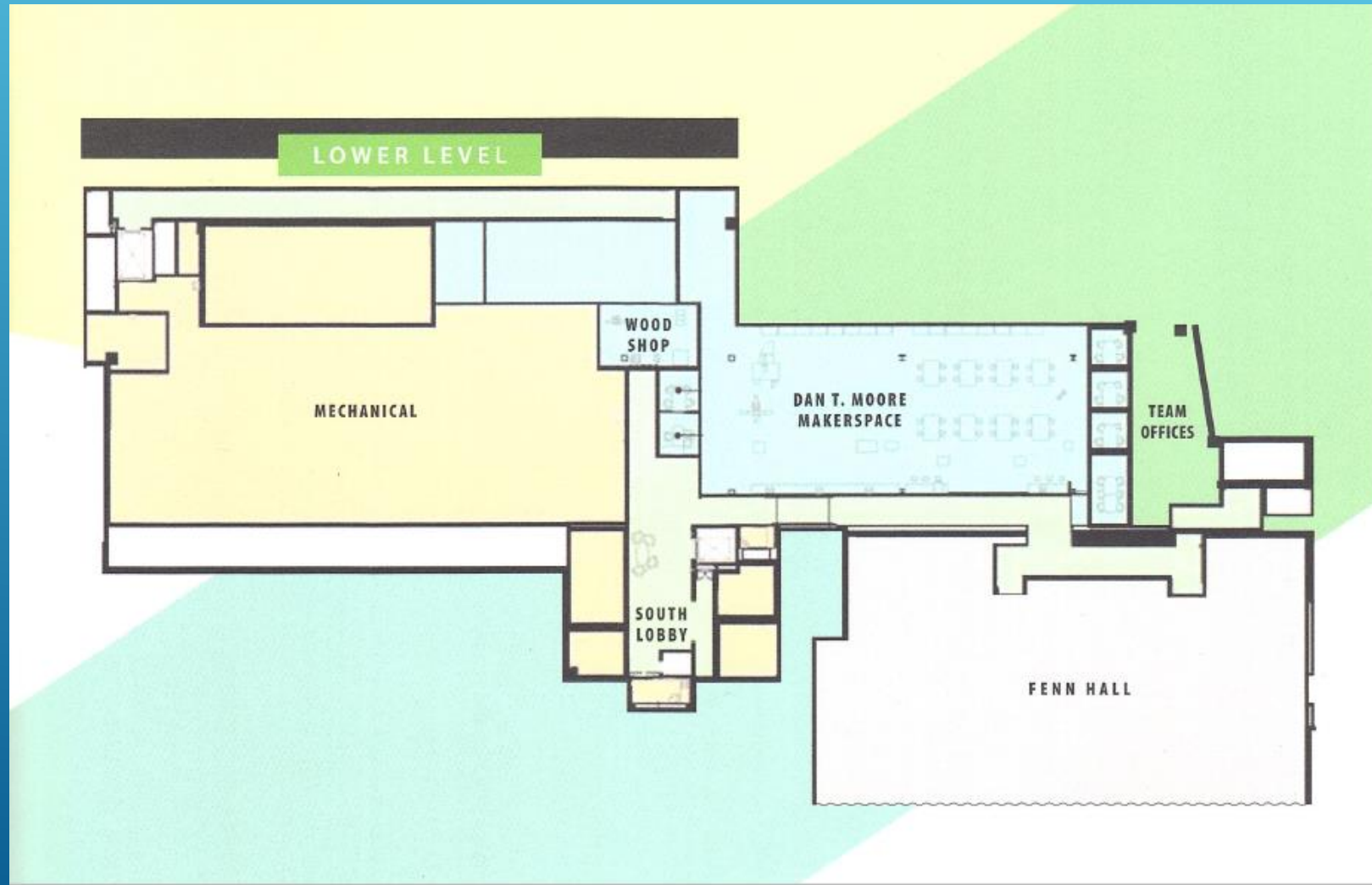


Dedication and Grand Opening for  
Washkewicz Hall





# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE I



# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE I



Dedication for the  
Dan T. Moore, Maker Space, Lower Level



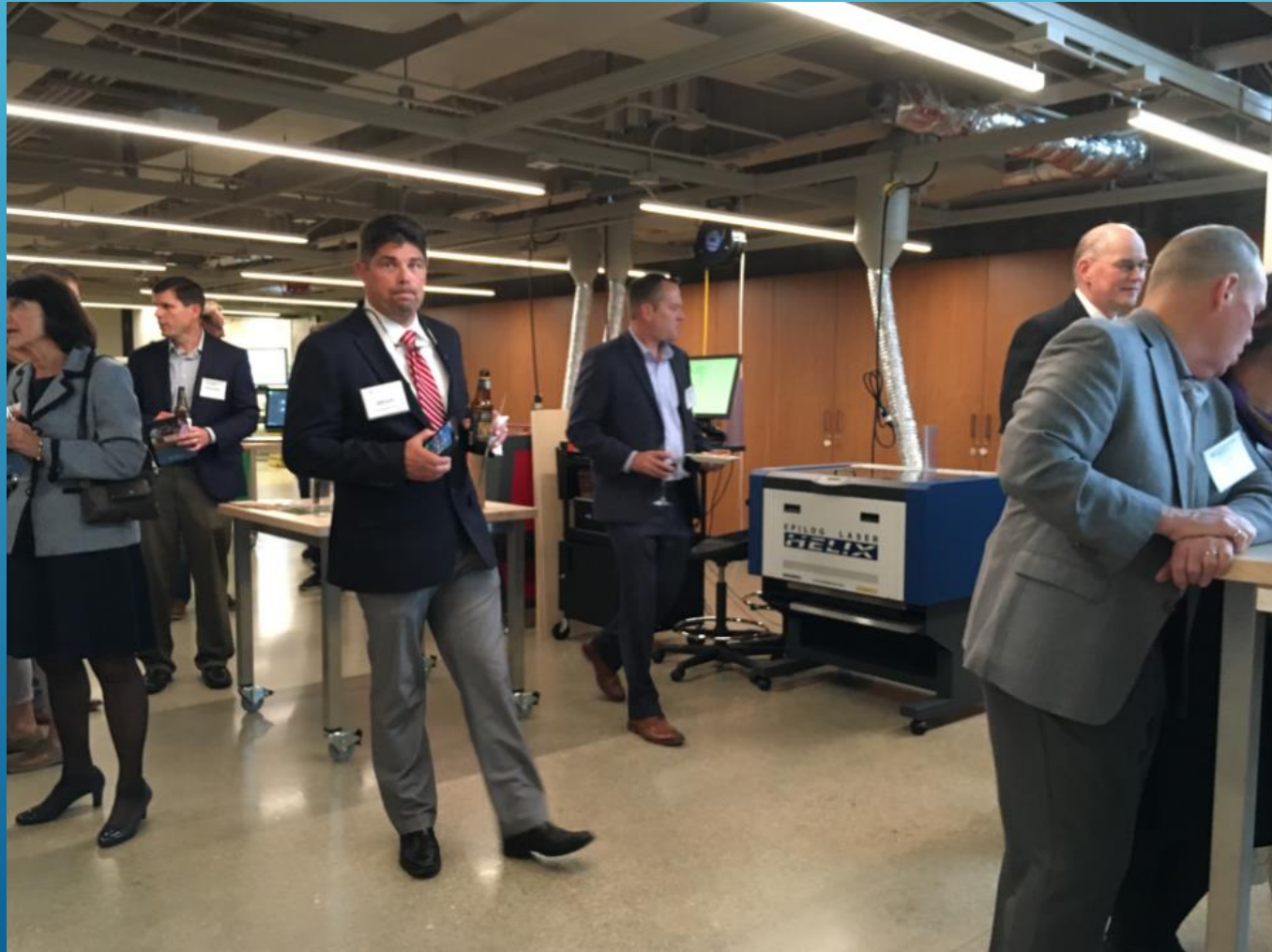


# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE I



Dr. Harlan M. Sands (on left),  
President Cleveland State University  
Dan T. Moore, Maker Space, Lower Level

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE I



Dedication of  
Dan T. Moore, Maker Space, Lower Level



# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE I



Dedication of  
Dan T. Moore, Maker Space, Lower Level

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE I



Dedication of  
Dan T. Moore, Maker Space, Lower Level



# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE I



Dr. Anette M. Karlsson,  
Dean Washkewicz College of Engineering  
Dedication of  
Dan T. Moore, Maker Space, Lower Level

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE I



Dan T. Moore,  
President, D.T.M. Co., Member CSU Board

Dedication of  
Dan T. Moore, Maker Space, Lower Level



# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE I



Dedication of  
Dan T. Moore, Maker Space, Lower Level

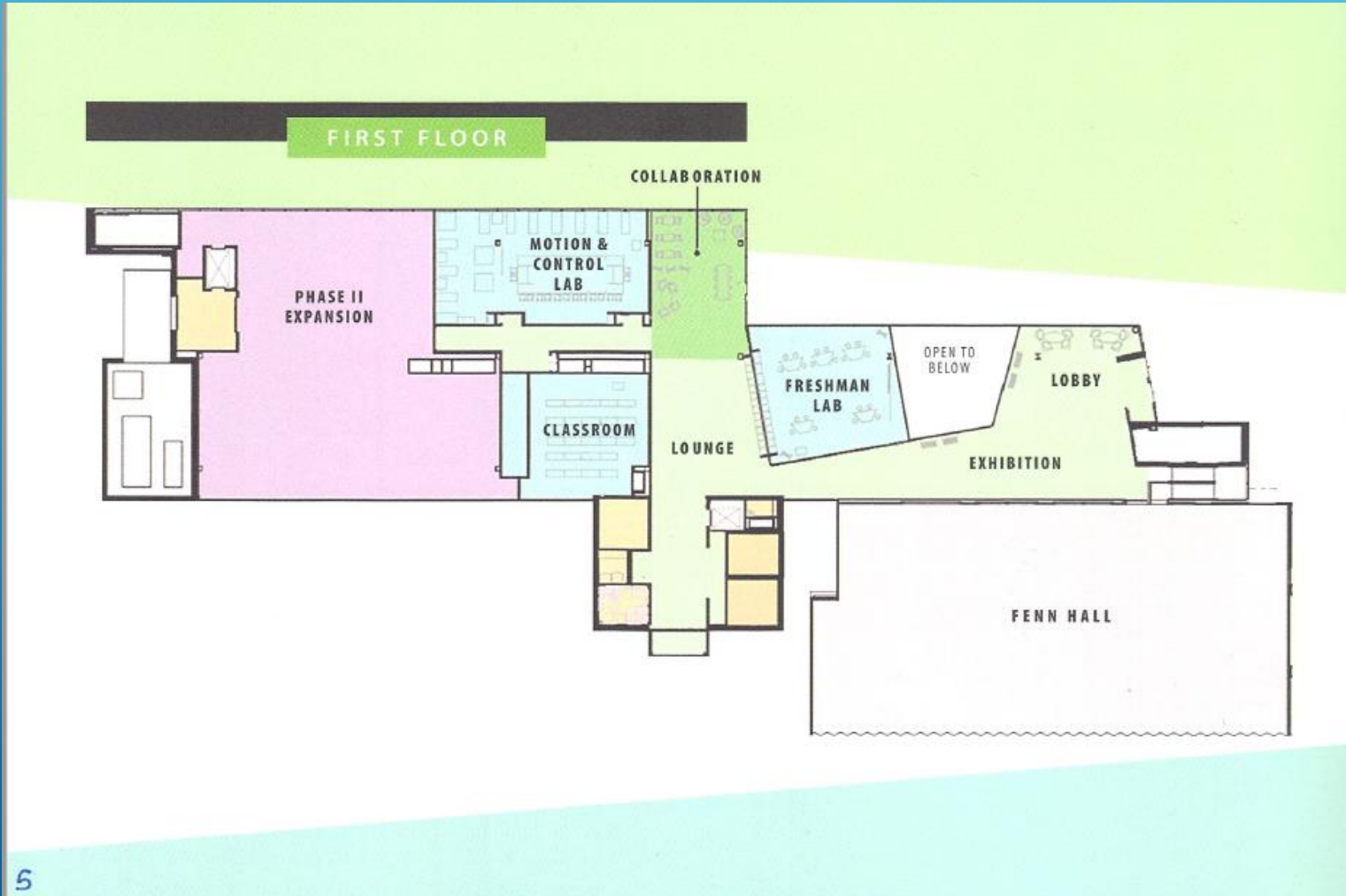
# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE I



Dedication of  
Dan T. Moore, Maker Space, Lower Level



# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE I



Washkewicz Hall  
First Floor Plan

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE I



Washkewicz Hall  
First Floor Artist Sketch

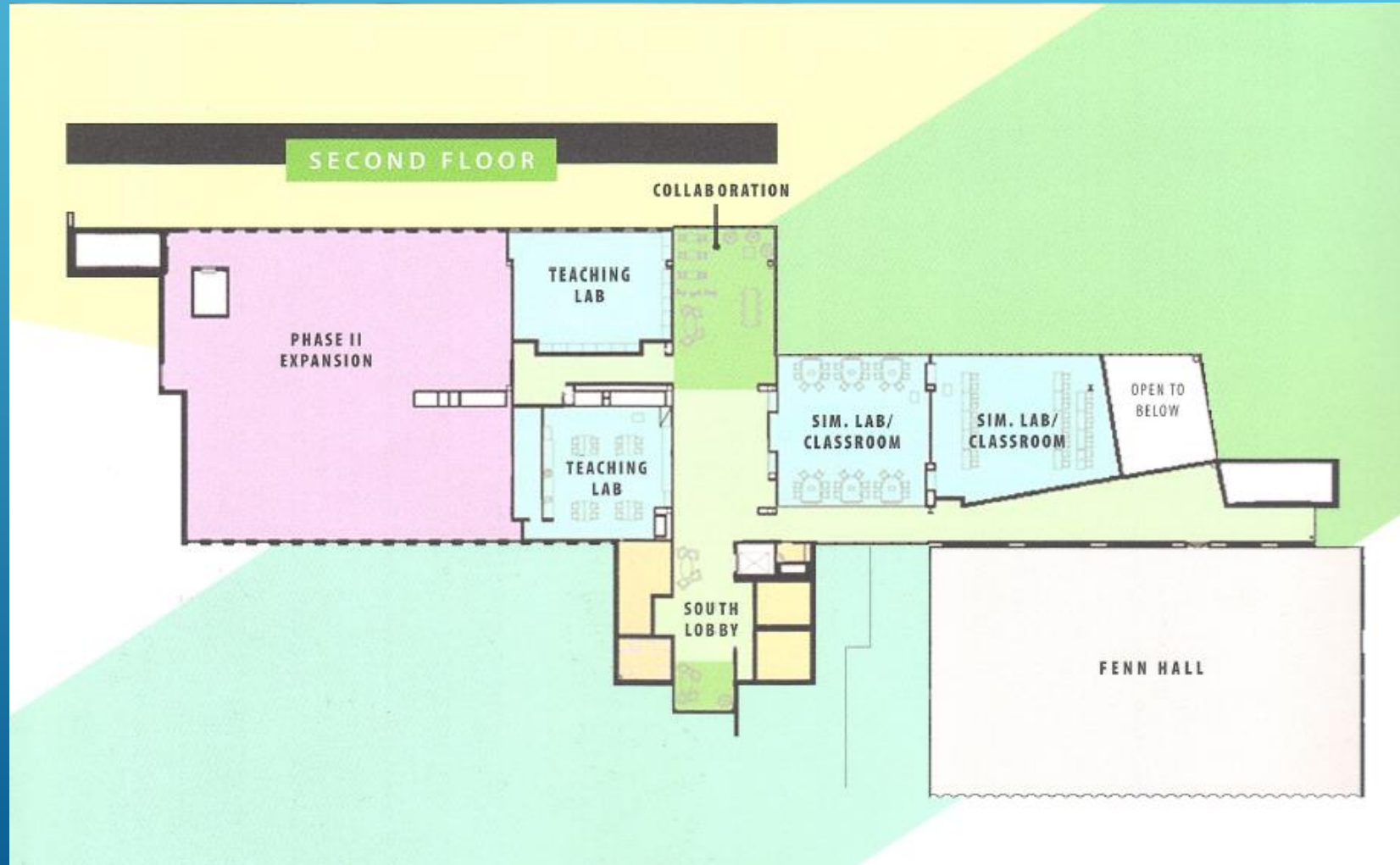


# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE I



Washkewicz Hall  
First Floor Artist Sketch

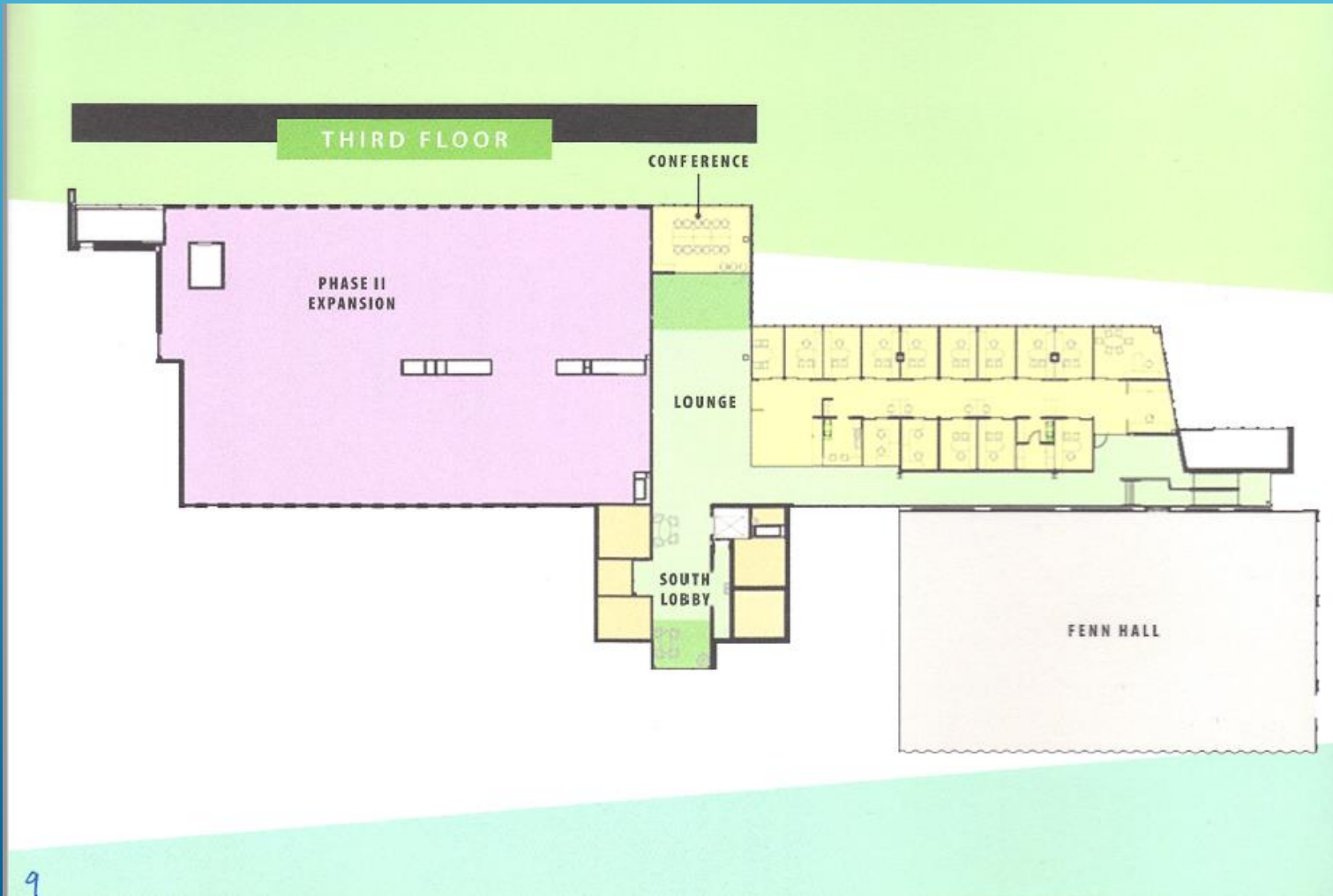
# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE I



Washkewicz Hall  
Second Floor Plan



# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE I



Washkewicz Hall  
Third Floor Plan

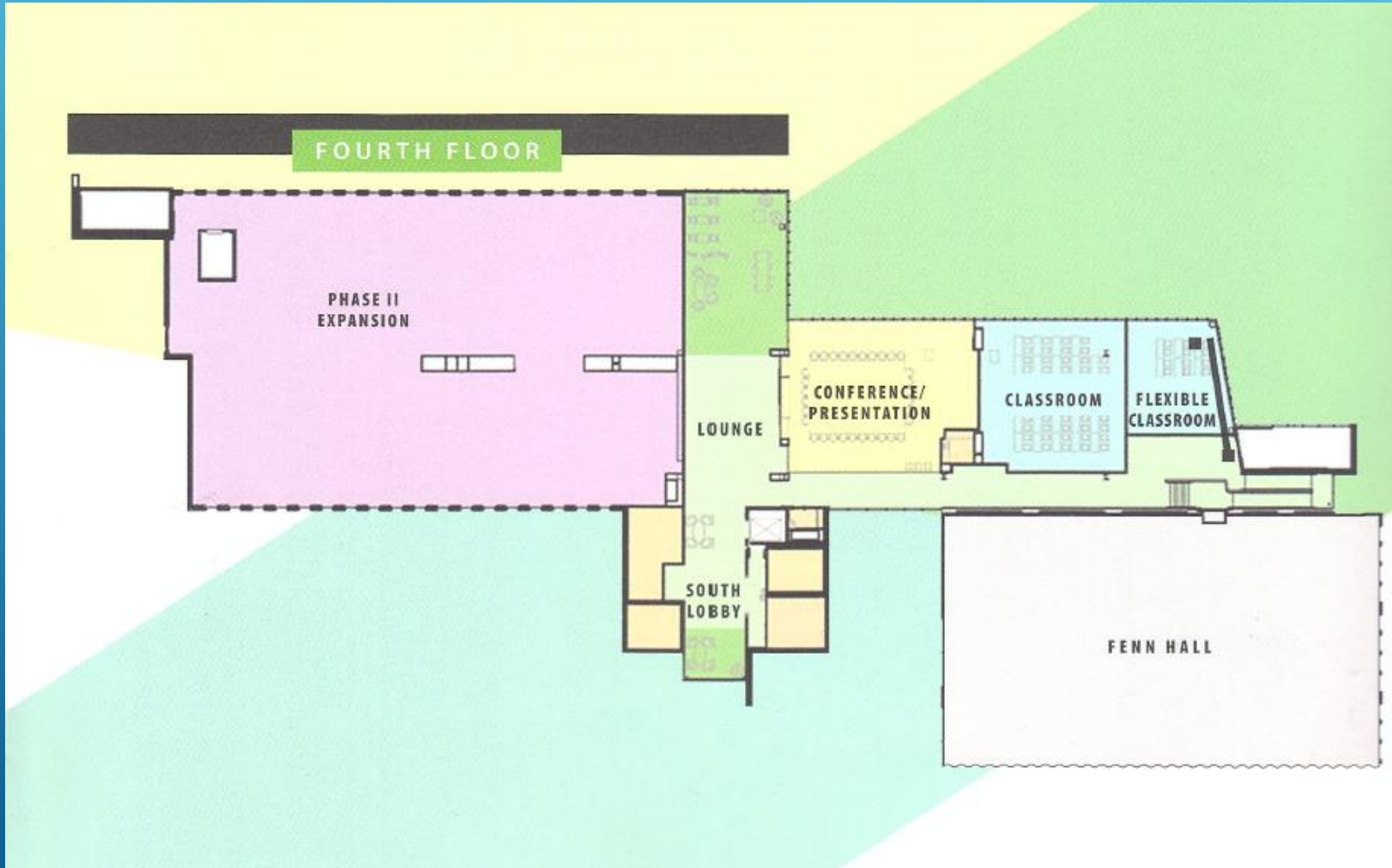
# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE I



Washkewicz Hall  
Third Floor Artist Sketch



# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE I



Washkewicz Hall  
Fourth Floor Plan

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE I



Washkeewicz Hall  
Fourth Floor

Conference Presentation Room  
during Phase II Grand Opening  
Speech by Dean Karlsson



# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE I



4<sup>th</sup> floor classroom during  
Xellia Pharmaceuticals  
Lunch & Learn GMP  
Facility Design  
Series Program

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE I



4<sup>th</sup> floor classroom during  
Xellia Pharmaceuticals  
Lunch & Learn GMP  
Facility Design  
Series Program



# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE I



4<sup>th</sup> floor classroom during  
Xellia Pharmaceuticals  
Lunch & Learn GMP  
Facility Design  
Series Program



# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE II



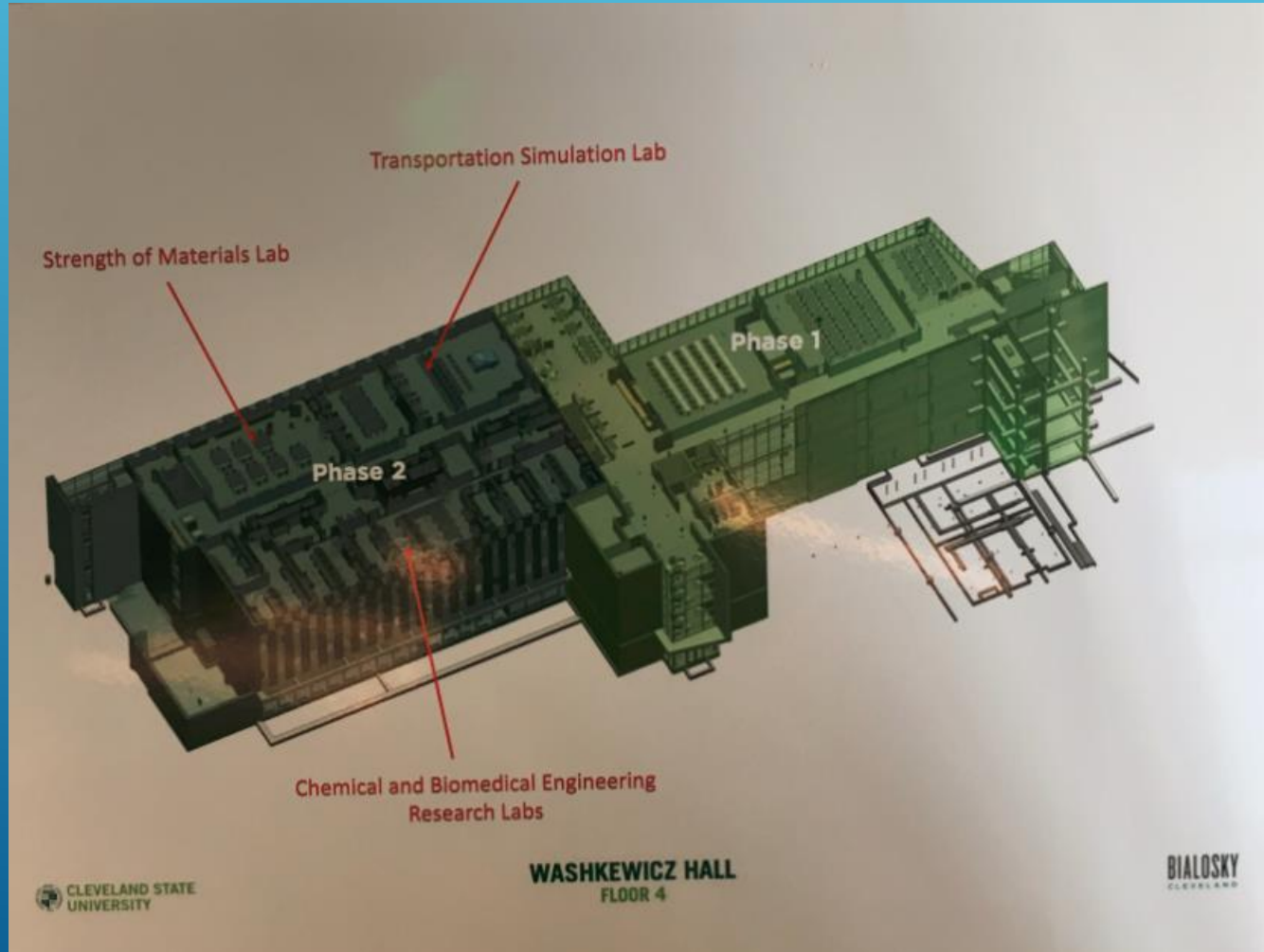
Washkewicz Hall  
Phase II

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE II



Washkewicz Hall  
Phase II  
Grand Opening

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE II



Washkewicz Hall  
Phase II  
Grand Opening  
Chemical and Biomedical  
Engineering Department  
4<sup>th</sup> Floor Plan

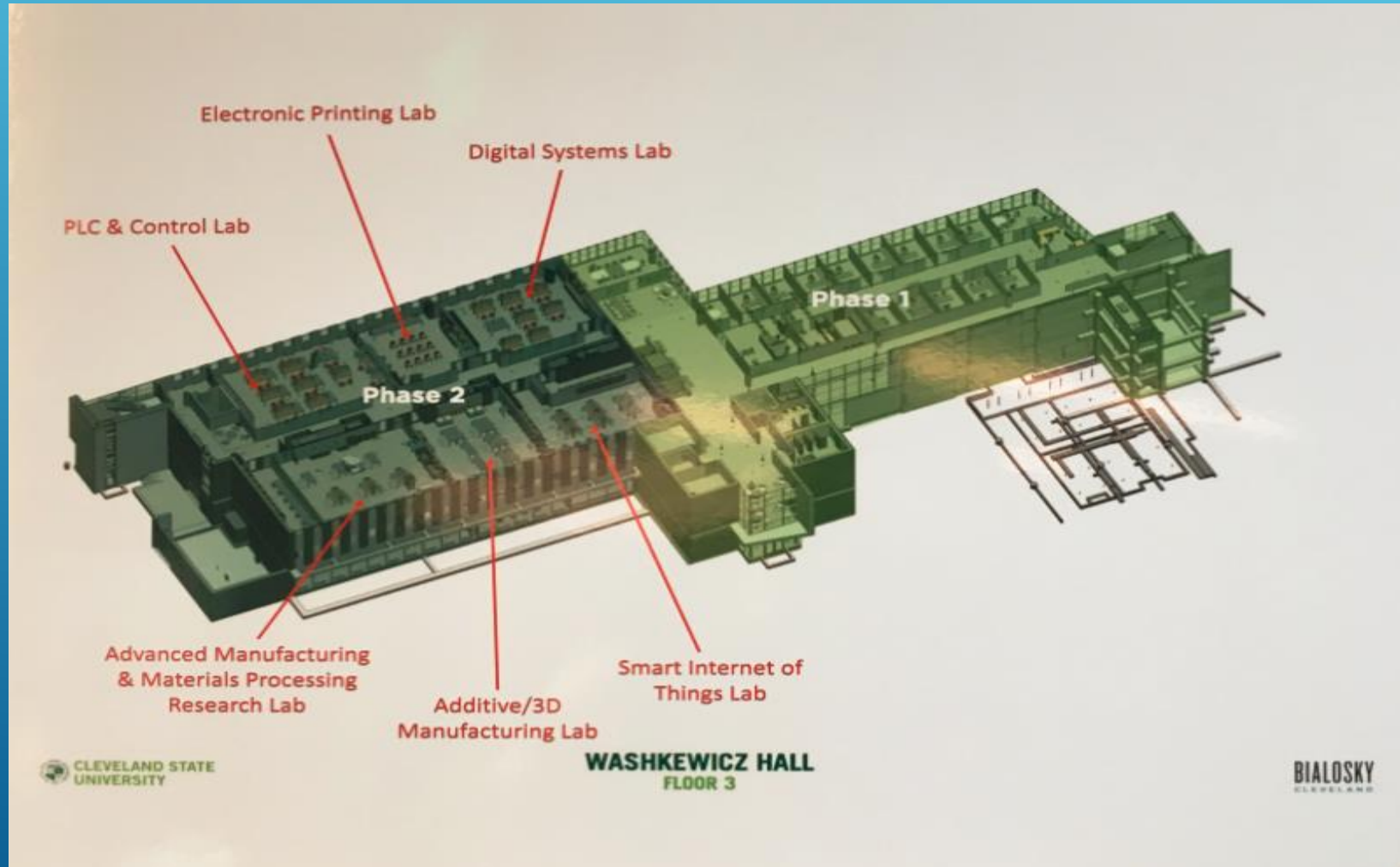


# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE II



Washkewicz Hall  
Phase II Grand Opening  
Chemical and Biomedical  
Engineering Department  
4<sup>th</sup> Floor Conference Room  
Engineering Dean Karlsson (left), and  
CSU President Sands (right)

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE II



Washkewicz Hall  
Phase II  
Grand Opening  
3<sup>rd</sup> Floor Plan

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE II



Washkewicz Hall  
Phase II  
Grand Opening  
3<sup>rd</sup> Floor Lab Room



# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE II



Washkewicz Hall  
Phase II  
Grand Opening  
Chemical and Biomedical  
Engineering Department  
3<sup>rd</sup> Floor Lab Room

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE II



Washkewicz Hall  
Phase II  
Grand Opening  
Chemical and Biomedical  
Engineering Department  
3<sup>rd</sup> Floor Lab Room

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE II



Washkewicz Hall  
Phase II  
Grand Opening  
Chemical and Biomedical  
Engineering Department  
3<sup>rd</sup> Floor Lab Room

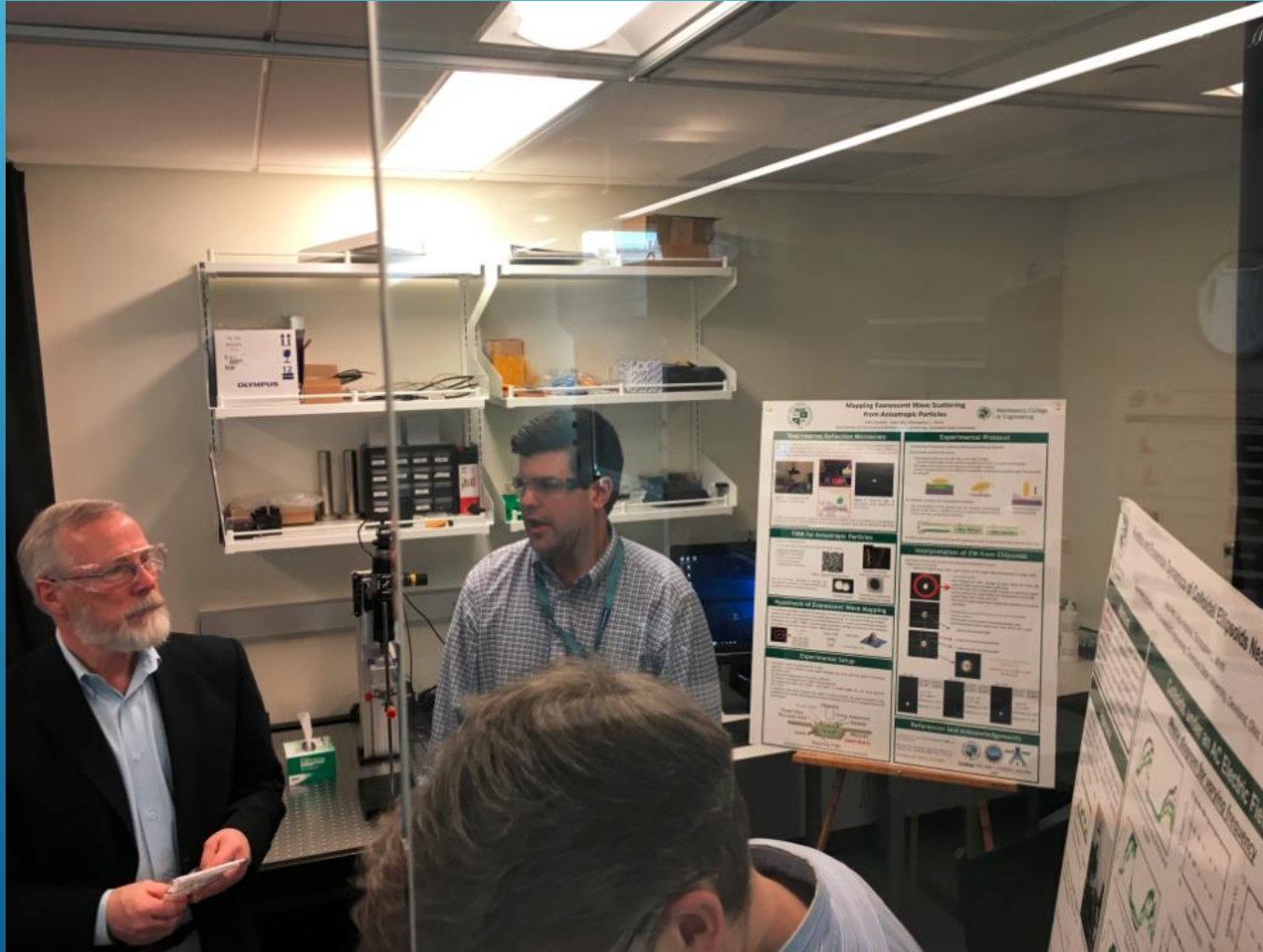


# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE II



Washkewicz Hall  
Phase II  
Grand Opening  
Chemical and Biomedical  
Engineering Department  
3<sup>rd</sup> Floor Lab Room

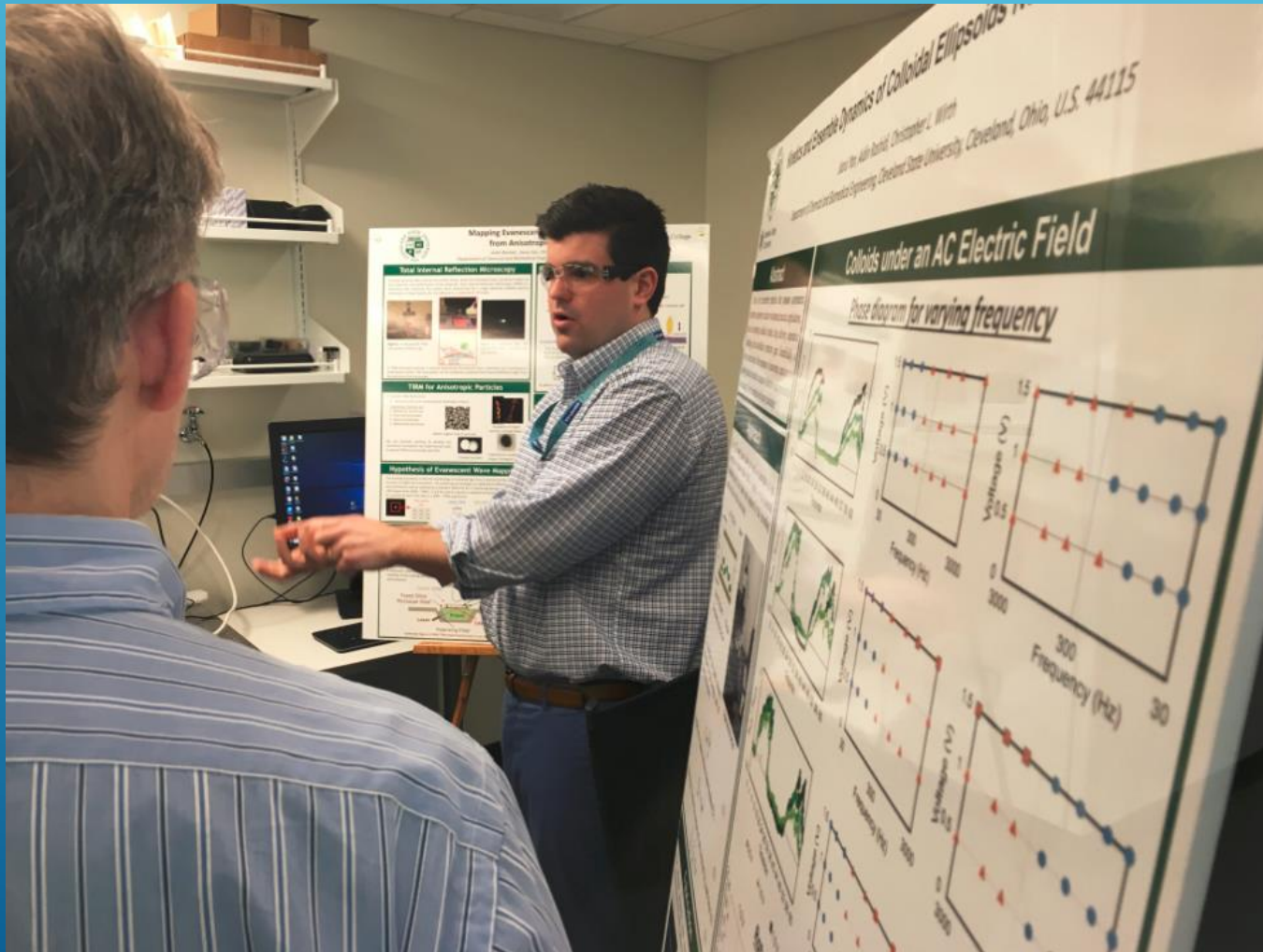
# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE II



Washkewicz Hall  
Phase II  
Grand Opening  
Chemical and Biomedical  
Engineering Department  
3<sup>rd</sup> Floor Lab Room



# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE II



Washkewicz Hall  
Phase II  
Grand Opening  
Chemical and Biomedical  
Engineering Department  
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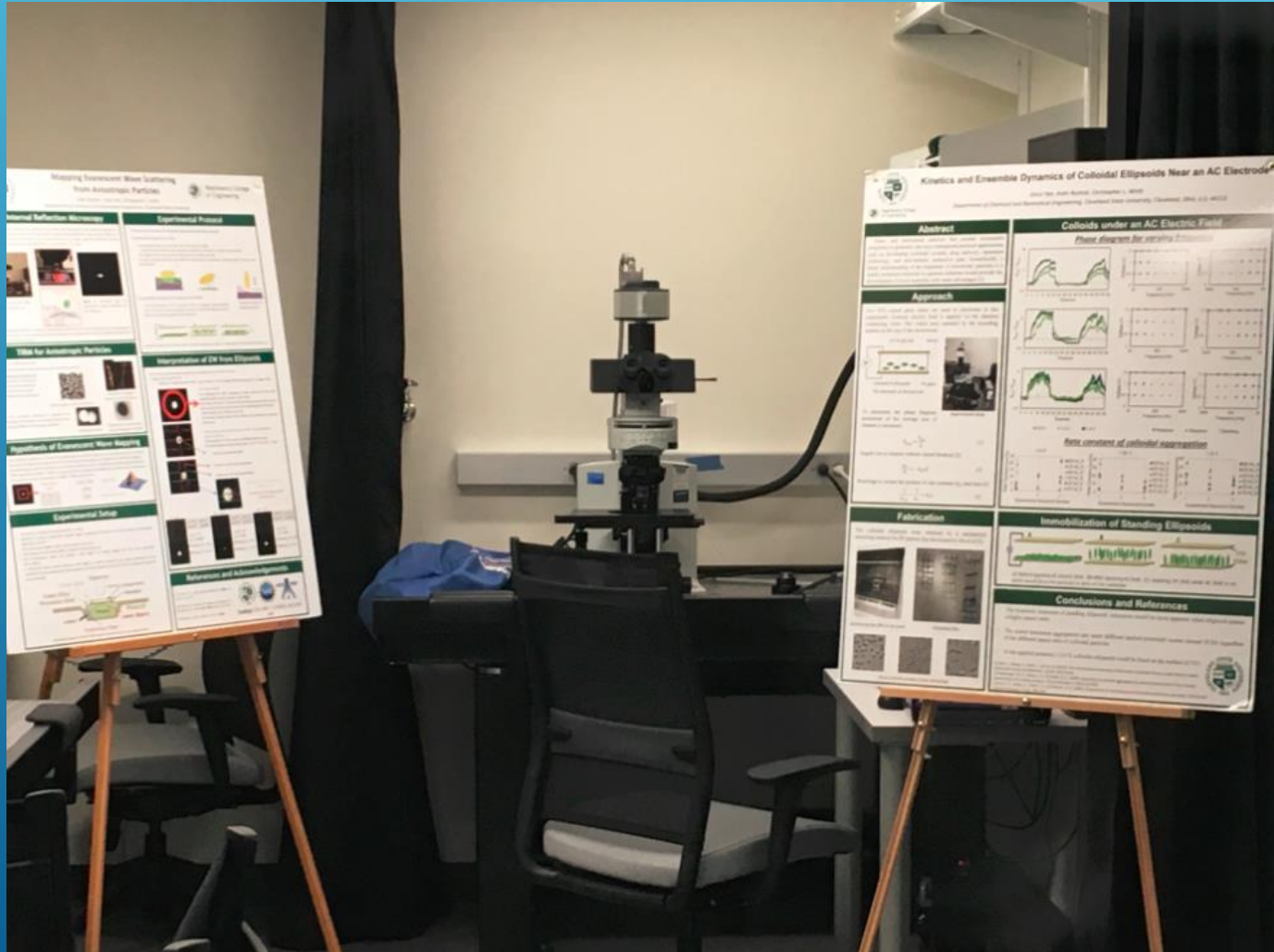


# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE II



Washkewicz Hall  
Phase II  
Grand Opening  
Chemical and Biomedical  
Engineering Department  
3<sup>rd</sup> Floor Lab Room

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE II



Washkewicz Hall  
Phase II  
Grand Opening  
Chemical and Biomedical  
Engineering Department  
3<sup>rd</sup> Floor Lab Room

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Washkewicz Hall  
Phase II  
Grand Opening  
Chemical and Biomedical  
Engineering Department  
3<sup>rd</sup> Floor Lab Room

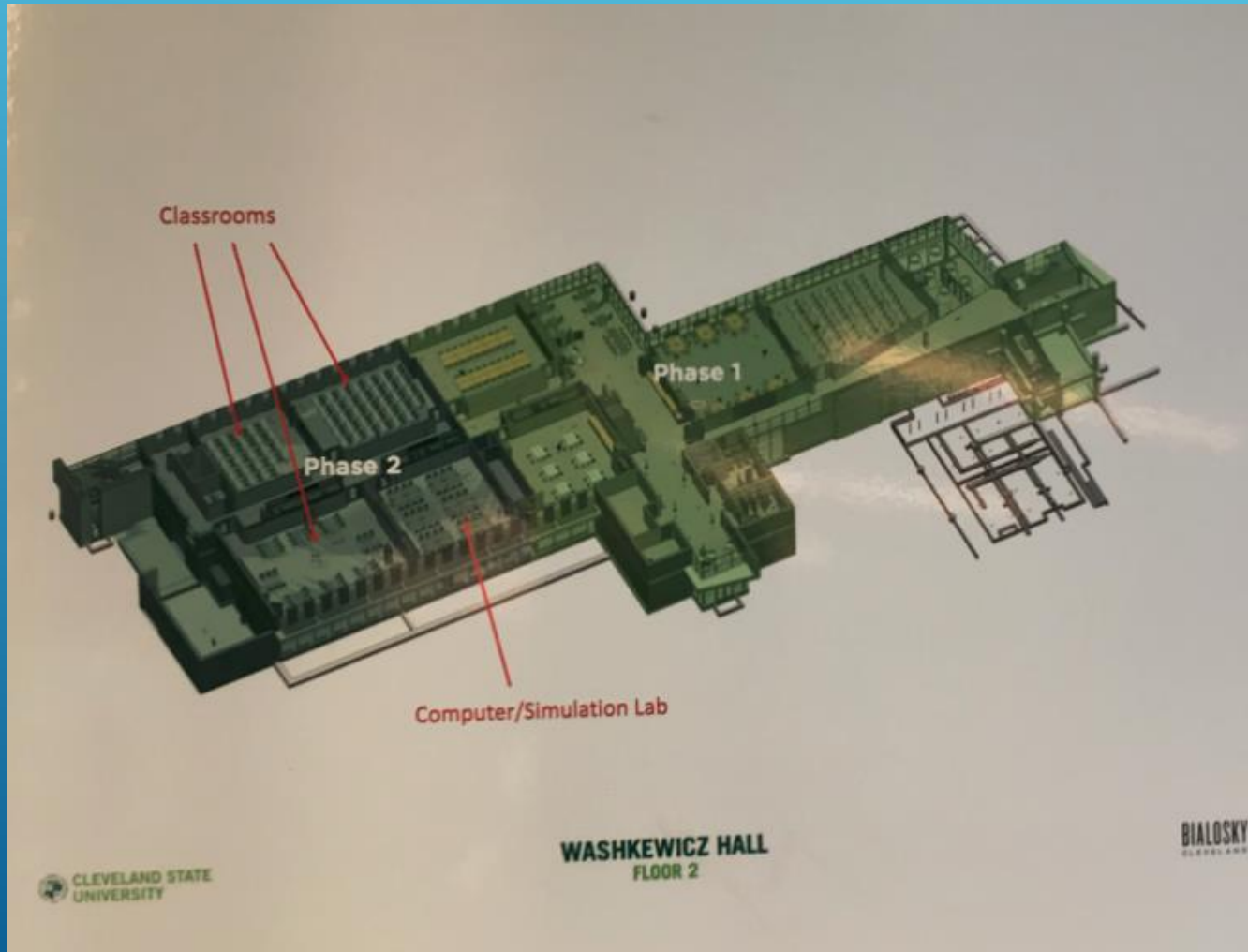


# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE II



Washkewicz Hall  
Phase II  
Grand Opening  
Chemical and Biomedical  
Engineering Department  
3<sup>rd</sup> Floor Lab Room

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE II



Washkewicz Hall  
Phase II  
Grand Opening  
Chemical and Biomedical  
Engineering Department  
2<sup>nd</sup> Floor Lab Room

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE II



Washkewicz Hall  
Phase II  
Grand Opening  
Chemical and Biomedical  
Engineering Department  
2<sup>nd</sup> Floor Lab Room



# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING CHEMICAL ENGINEERING LABS. PHASE II



Washkewicz Hall  
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Washkewicz Hall  
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Chemical and Biomedical  
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Washkewicz Hall  
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Washkewicz Hall  
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Washkewicz Hall  
Phase II  
Grand Opening  
Chemical and Biomedical  
Engineering Department  
2<sup>nd</sup> Floor Lab Room

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING GRADUATE & UNDERGRADUATE ENGINEERING POSTERS

CSU Student Union,  
Washkewicz College of Engineering  
Poster Session





# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING GRADUATE & UNDERGRADUATE ENGINEERING POSTERS

## Washkewicz College of Engineering Research Day 2017

Please join us at the Engineering Research Day 2017 on Friday, October 27 in the Student Center Ballroom and celebrate with us the cutting-edge research performed by our College.

Walk through the morning research poster session and enjoy lunch during the keynote speech by Dr. D. Geoffrey Vince, PhD, the Chair of Biomedical Engineering at the Cleveland Clinic.

Space for the luncheon and keynote is limited, please register no later than Monday, October 23<sup>rd</sup>.  
Register here: [https://csuengineering.formstack.com/forms/engineering\\_research\\_day\\_2017](https://csuengineering.formstack.com/forms/engineering_research_day_2017)

### Poster Session

10:00 a.m. - 11:30 a.m.

### Break

11:30 a.m. - 12:00 p.m.

### Luncheon and Keynote Speech

12:00 p.m. - 1:30 p.m.

[D. Geoffrey Vince, Ph.D.](#)

The Virginia Lois Kennedy Chair in Biomedical Engineering and Applied Therapeutics  
Chair, Department of Biomedical Engineering  
Lerner Research Institute  
Cleveland Clinic



*All events will take place in the Student Center Ballroom (3<sup>rd</sup> floor)*

### Previous Speakers Include:

2016: Dr. Robert Graf, Corporate Vice President of Research & Development, [Tbe](#) Lubrizol Corporation

2015: Dr. Rickey ~~Shyne~~, Director of Research and Engineering, NASA-Glenn Research Center

2014: Mr. Matt Hlavin, [President & CEO at Thorus](#), CEO at Radiation Protection Technologies (RPT), CEO at Rapid Manufacturing LLC, CEO at JALEX Medical

2013: Dr. Antonie van den Bogert, Parker Hannifin Endowed Chair in Human Motion & Control, Cleveland State University & Mr. Craig Maxwell, Corporate Vice President of Technology and Innovation, Parker Hannifin Corporation

CSU Student Union,

Washkewicz College of Engineering

Poster Session

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING GRADUATE & UNDERGRADUATE ENGINEERING POSTERS

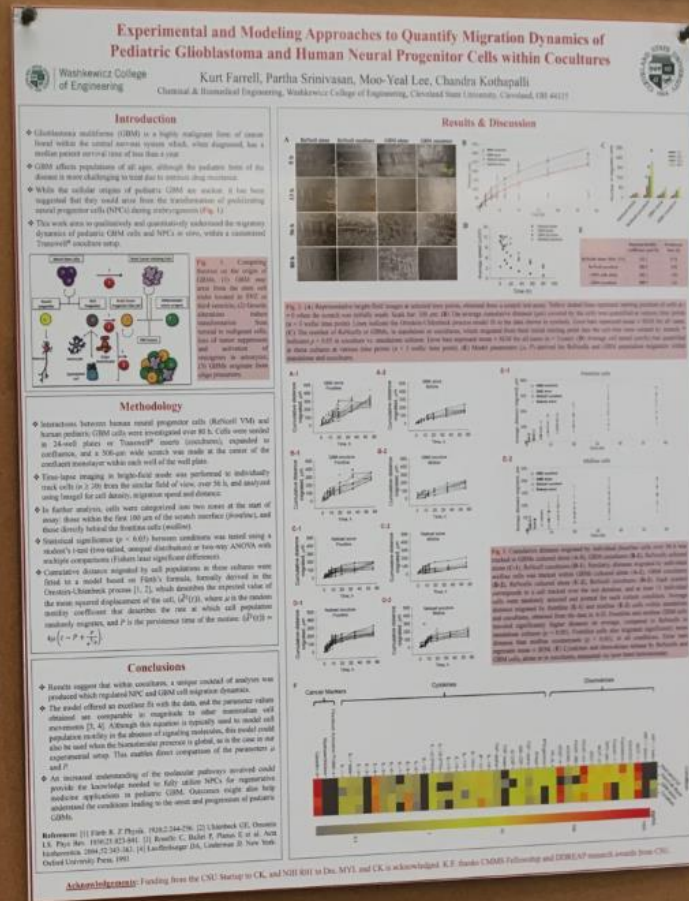
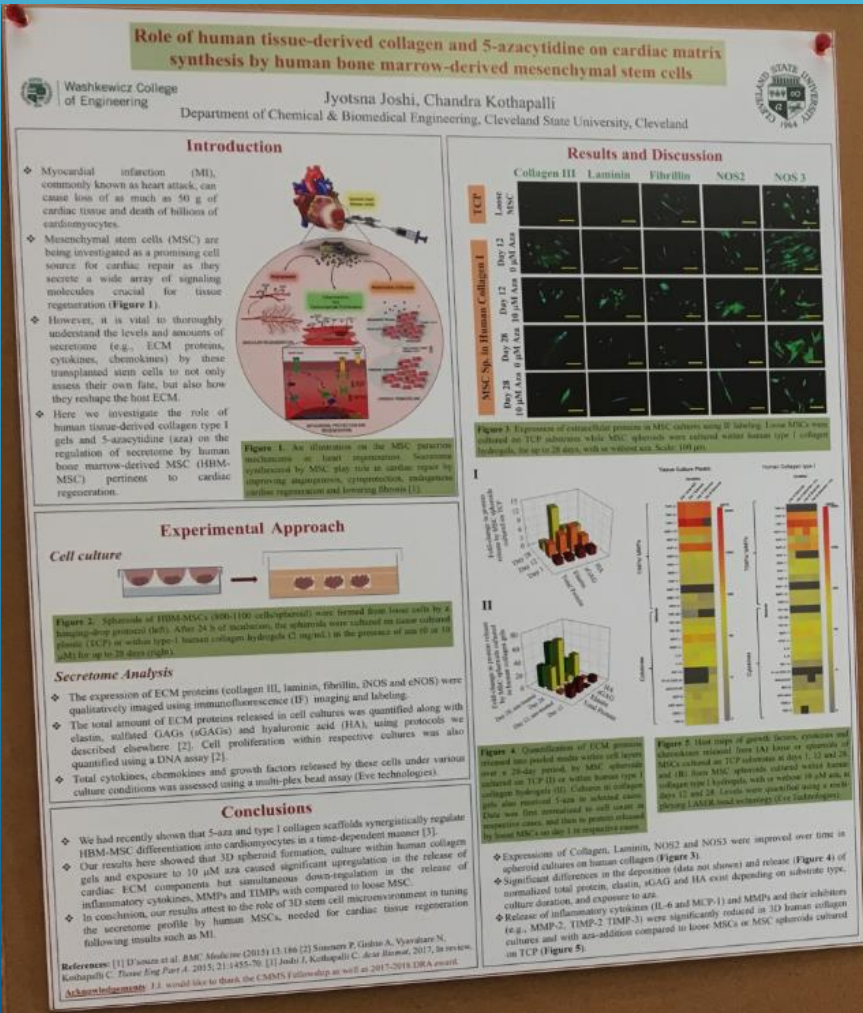


CSU Student Union,  
Washkewicz College of Engineering  
Poster Session



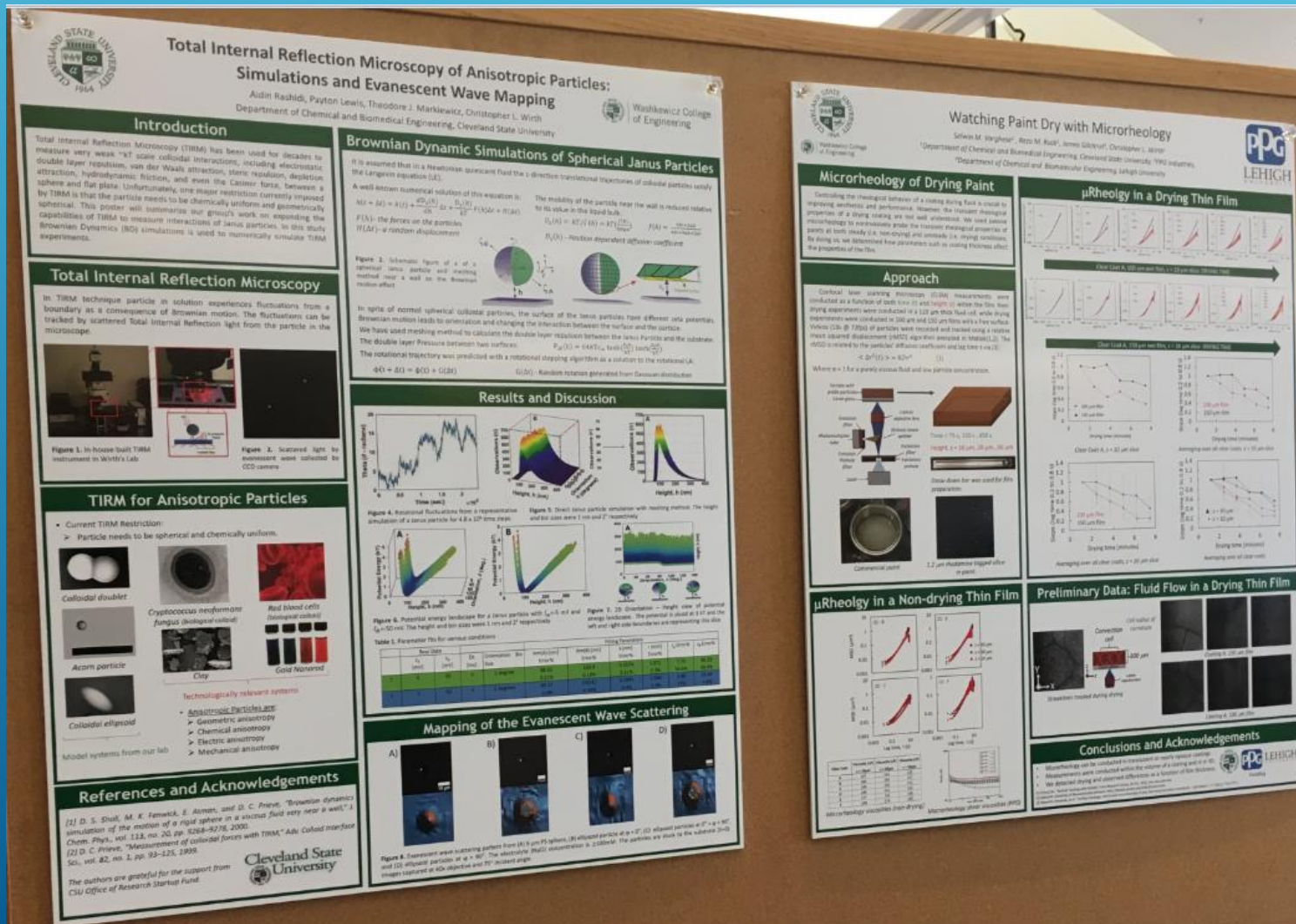
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CSU Student Union,  
Washkewicz College of Engineering  
Chemical and Biomedical  
Engineering Department  
Poster Session





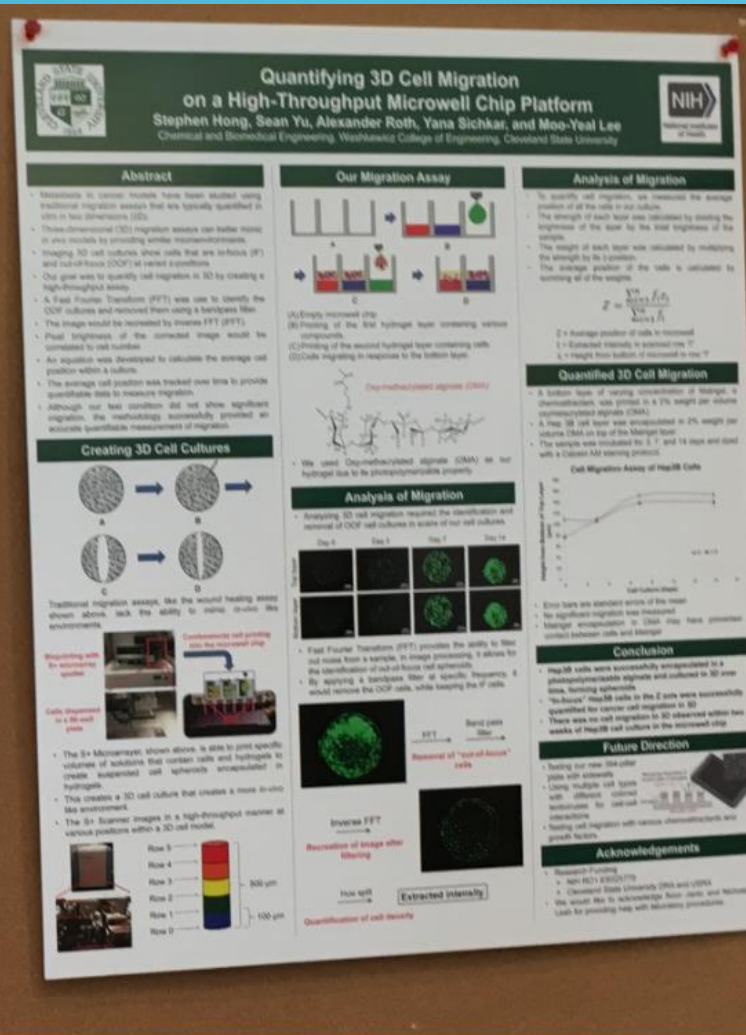
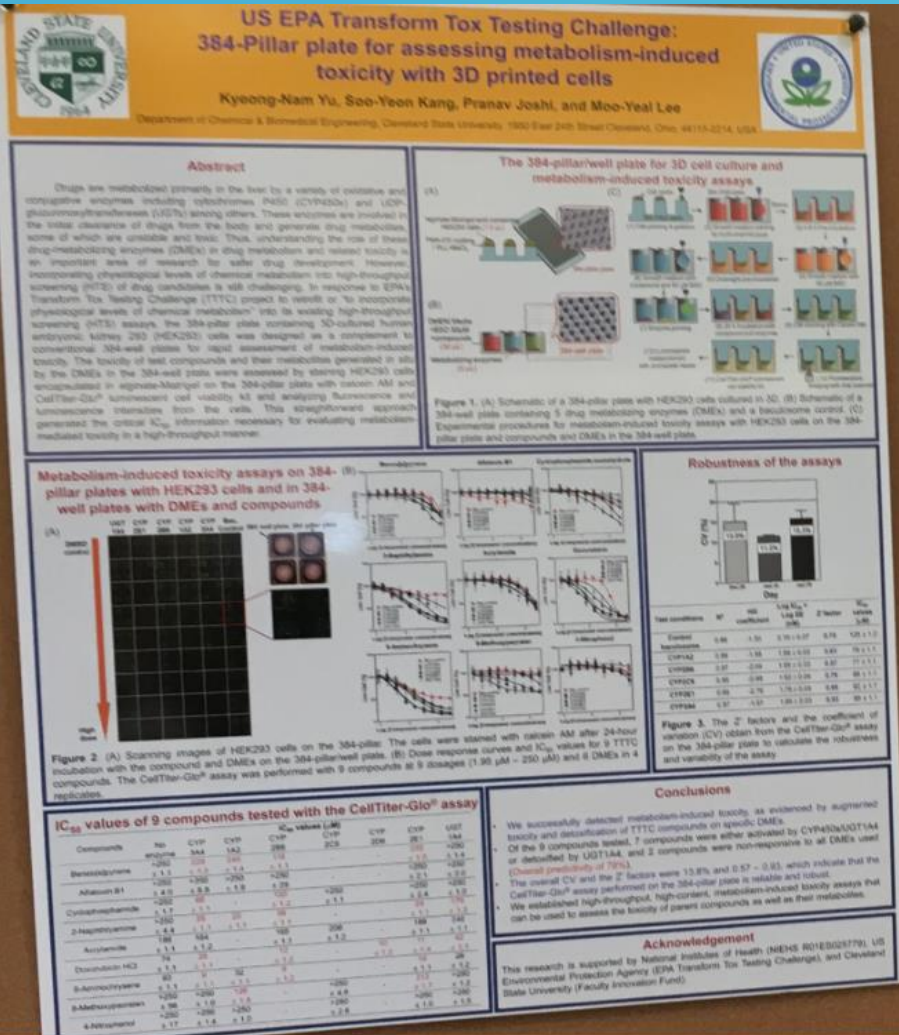
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CSU Student Union,  
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CLEVELAND STATE UNIVERSITY  
WASHKEWICZ COLLEGE OF ENGINEERING  
GRADUATE & UNDERGRADUATE ENGINEERING POSTERS

CSU Student Union,  
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CSU Student Union,  
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Poster Session



# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING GRADUATE & UNDERGRADUATE ENGINEERING POSTERS



CSU Student Union,  
Washkewicz College of Engineering  
Poster Session

Key Note Speaker,  
Dr. Geoffrey Vince, PhD, Chair  
Department of Biomedical  
Engineering,  
Cleveland Clinic

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING NORTHEAST OHIO SCIENCE & ENGINEERING FAIR



CSU Physical Education Center,  
Washkewicz College of Engineering  
NEOSEF Poster Session



# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING NORTHEAST OHIO SCIENCE & ENGINEERING FAIR



CSU Physical Education Center,  
Washkewicz College of Engineering  
NEOSEF Poster Session



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CSU Physical Education Center,  
Washkewicz College of Engineering  
NEOSEF Poster Session

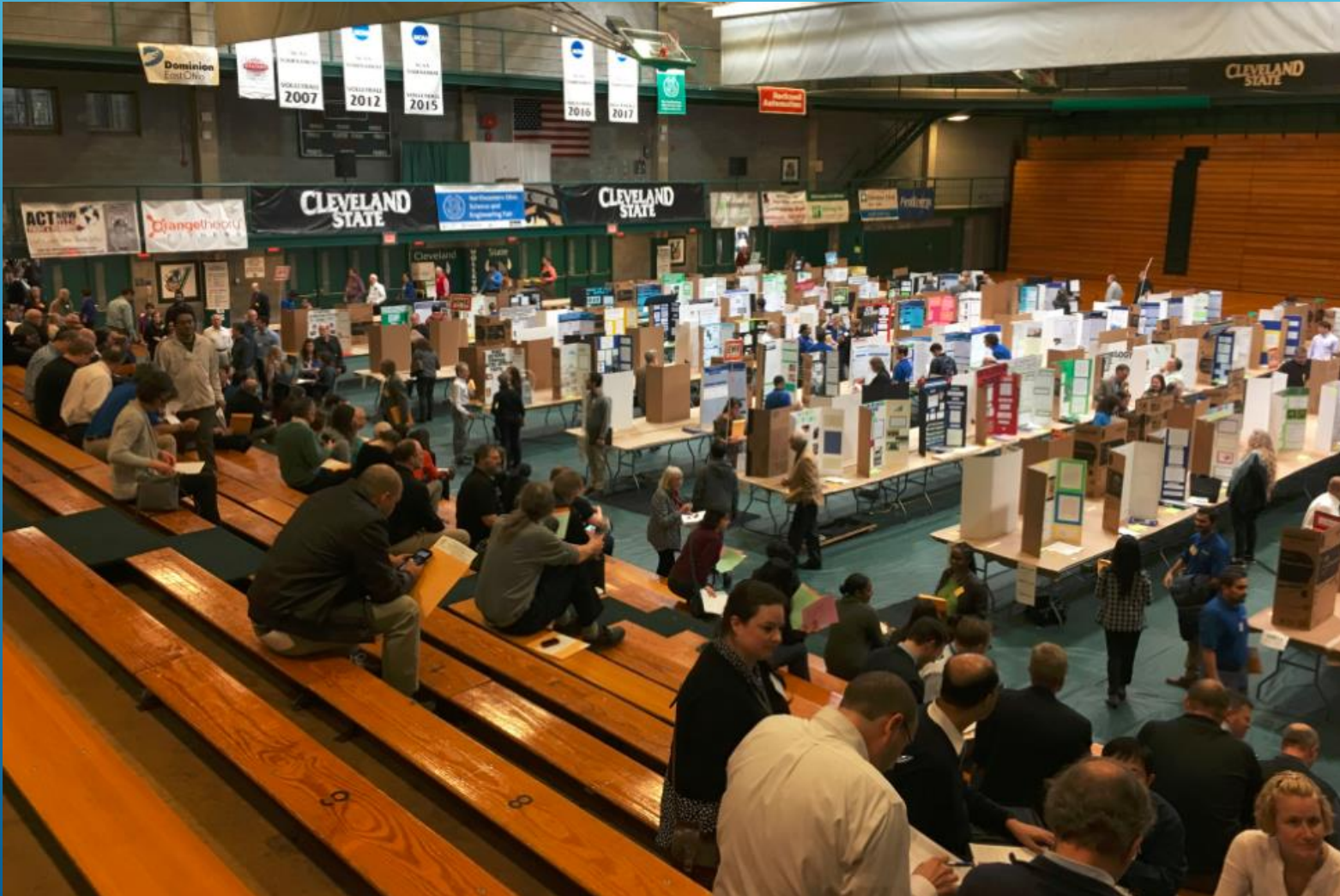
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CSU Physical Education Center,  
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NEOSEF Poster Session



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CSU Physical Education Center,  
Washkewicz College of Engineering  
NEOSEF Poster Session



# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING JOB FAIR



CSU Physical Education Center,  
Washkewicz College of Engineering  
Job Fair



# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING JOB FAIR



CSU Physical Education Center,  
Washkewicz College of Engineering  
Job Fair

# CLEVELAND STATE UNIVERSITY WASHKEWICZ COLLEGE OF ENGINEERING JOB FAIR



CSU Physical Education Center,  
Washkewicz College of Engineering  
Job Fair