



Student Poster Presentation Guidelines

2017 RESEARCH CONFERENCE



A well-constructed e-poster should have adequate coverage and clarity. The e-poster should cover the following components either through written or visual form:

- Project goals and objectives
- Methods
- Results or progress to date
- Innovativeness of the research approach
- Potential impact of the outcomes

Additionally, please consider the following formatting tips:

- Please adjust your file sizes to fit the dimensions of 36"x24" in case they need to be printed
- The e-poster should be legible from about a distance of 3 meters, suggesting a text size of at least 24 points
- Title of the research project, name of the presenter, and name of institution should be included on the e-poster
- Credit must be provided to all team members



The Top 15 posters will be selected and printed for a Q&A Session on June 9, 2017. The printed posters will be pinned on a white foam poster board (30"x40") provided by IC-IMPACTS.

During the Q&A Session, students will be asked to stand by their posters and engage the conference attendees as they walk through and view the posters.

Abstracts for the Top 15 posters will be included in the conference proceedings.



The Top 6 students will each give a rapid-fire oral presentation of their research to the entire audience at the research conference on June 9, 2017.

Presenters will have a **total of 7 minutes: 5 minutes to make convey the key messages about your poster and 2 minutes for one or two questions**. Please limit your presentation to a maximum of 4 slides (1 title slide and 3 content slides) for rapid fire presentation.

Additional tips and resources will be given to the Top 6 once they have been selected.

Fabrication of Nearly Hemispherical Lenses Using Water Droplets as Mold

Bhuvaneshwari Karunakaran, Ammar Jagirdar, Debjani Paul, Soumyo Mukherji
 Department of Biosciences & Bioengineering, IIT Bombay, India.

Objectives

- To fabricate miniature lenses that have
- High quality – for example, very less roughness
 - High numerical aperture
 - Controllable size
- The fabrication technique should be
- cost effective
 - easy to fabricate in a lab

Introduction

- ### Why do we need miniature lenses?
- For applications such as MEMS based devices, smart phone based diagnostics.
 - To obtain microscopic images of higher magnification

Why water based?

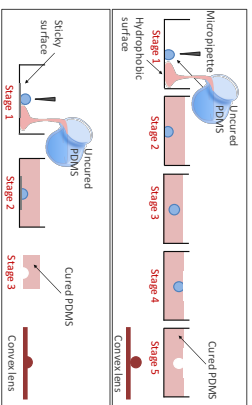
- Naturally forming meniscus results in highly smooth lenses
- Ease of fabrication and economical

Innovativeness of the presented work

- Does not require expensive tool and equipment
- Lenses with high numerical aperture can be fabricated

Method

Concave Lens Fabrication

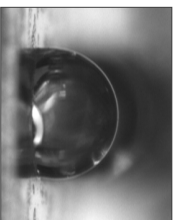


Method

Convex Lens Fabrication

- PDMS template treated with Piranha solution[1].
- Cleaned with DI water and blow dried with nitrogen gun
- Now, PDMS template treated with salinizing agent
- Uncured PDMS poured on treated PDMS template and cured

Results

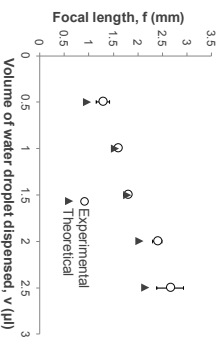


Top view of the lenses under SEM

Without surface treatment of PDMS concave template

With surface treatment of PDMS concave template

Focal Length measurement



Reference

1) T. Das, D. Chakraborty, and S. Chakraborty, "Fabrication of microfluidic devices", Chis and Ips, Royal Society of Chemistry, Date: 27 Feb 2009.

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Results

Experimental Setup

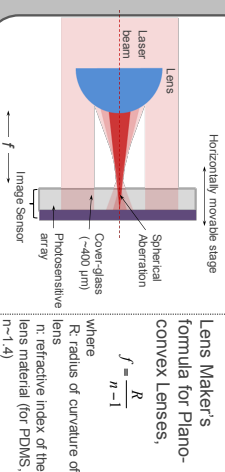
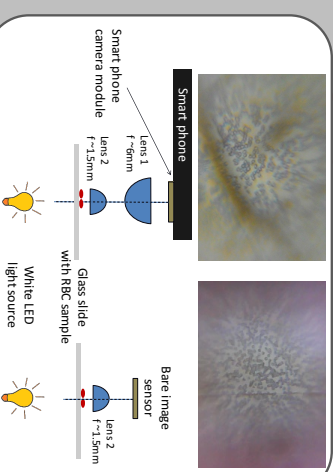


Image Acquisition



Future Scope

- Automatically dispensing water gives better control of the micropipette and hence, small lenses can be fabricated with higher precision
- Using Inkjet printing combined with this technique, microlens array fabrication is possible

Acknowledgement

- CEN and IITBNF
- Deity, Govt. of India