

QUARTERLY PROGRESS REPORT
September 1, 2018 – November 31, 2018

PROJECT TITLE: Detection and Separation of Recyclable Plastics from Municipal Solid Waste (Year 1)

PRINCIPAL INVESTIGATOR: Debashis Chanda, PhD

AFFILIATION: University of Central Florida

COMPLETION DATE: August 31, 2019

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PROJECT WEB SITE: <https://www.nanoscience.ucf.edu/research/hinkley-project.php>

Work accomplished during this reporting period:

The first Technical Awareness Group meeting was held on November 1, 2018 attended by 6, representing academia, consulting, and industry. The webinar has been archived at our project web site.

Task 1: Hand-Held Device Design and Integration

- The design of the hand-held design was performed. It consists of a IR light guiding optical fiber (1 m long) with rear-end coupler to the spectrometer and front-end light focusing and collection probe to interrogate the sample of interest.
- The fiber optic was selected in such a way that it complies with the IR band of interest; it is from 3-12 um wavelength band.
- The probe was assembled and tested. Further optimization is envisaged for the coming quarter.

Task 2: Sample Collection and Characterization

- The team has partnered with UCF Recycles program in order to collect a statistically relevant plastic sample population.

Task 3: Optimization of the Identification Algorithm

- Nothing yet.

Work to be completed next quarter

- Optimize the optical design of the hand-held probe (Task 1).
- Collect samples and perform sample characterization (Task 2).
- Analyze data and implement algorithm to synthesize the data (Task 2 & 3).

Metrics:

1. List graduate or postdoctoral researchers who were funded by this Hinkley Center project.

Name	Rank	Department	Professor	Institution
Abraham Vazquez-Guardado	Postdoctoral Researcher	NanoScience Technology Cener	Debashis Chanda	University of Central Florida

2. List undergraduate students who worked on this Hinkley Center project.
None
3. List research publications resulting from this Hinkley Center project.
N/A
4. List research presentations resulting from this Hinkley Center project.
N/A
5. List who has referenced or cited your publications from this project?
N/A
6. How have the research results from this Hinkley Center project been leveraged to secure additional research funding?
N/A
7. What new collaborations were initiated based on this Hinkley Center project?
N/A
8. How have the results from this Hinkley Center funded project been used (not will be used) by the FDEP or other stakeholders?
 - None to date