

# Luminescence Solar Energy Concentrator With Fiber Geometry

Degnet Melese

Supervisor Prof. Alberto Quranta

co-advisor Dr. ING. Matteo Dalla Palma

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December 18,2015

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- 1 Objective
- 2 Introduction
- 3 Material and methods
- 4 Result and discussion
- 5 Conclusion and future work

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# Objective of the study

- Synthesize fiber geometry luminescence solar energy concentrator (LSC) based on polysiloxanes polymer with 22% and 14% of diphenyl units in the chain.
- Avoiding reflection from back signal by black painting and analyzing intensity loss under bended fibers.

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- LSC is a transparent matrix material such as plastic plate, fiber, coated or doped with organic fluorescent dyes, inorganic phosphors or quantum dots (QD) that absorb sunlight and re-emit at longer wavelengths
- LSCs is promising research topic to solve cost effectiveness, efficiency challenges of PV cells and used in buildings due to its flexibility.
- type of luminescence species and matrix, number and type of solar cell used and also size of LSCs decisively affects the optical efficiency
- fiber LSC which satisfactorily meets necessary standards of flexibility, by controlling the phenyl functional group in the polysiloxane compound is essential.
- minimize reflection from back signals, by carbon black painting and light travel along one direction has to be analyzed
- Depending the material results in light intensity less the losses

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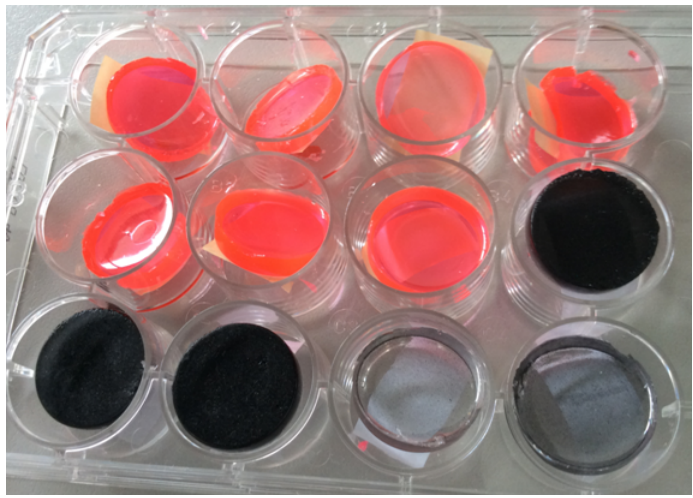


Figure: disk samples

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