

# Prahalad Murali

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## EDUCATION

- **Georgia Institute of Technology, Atlanta, GA – USA** *August 2019 - Present*  
Candidate for Master of Science in Materials Science and Engineering  
GPA: 3.66/4
  - **National Institute of Technology, Tiruchirappalli – India** *July 2015 - May 2019*  
Bachelor of Technology in Metallurgical and Materials Engineering  
CGPA: 9.09/10 | Top 10 percentile of the graduating class (Class size- 64)
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## SKILLS

**Process:** Femtosecond Laser, Electroless deposition, Electrochemical deposition, Vacuum Lamination, Photolithography

**Characterization and Testing:** Scanning Electron Microscopy (SEM), Optical microscope, Optical Profiler, Rockwell Hardness test, Tensile Testing

**Softwares:** Origin Pro, X'Pert Highscore, MS Office, AutoCAD (beginner)

**Programming Languages:** C and C++

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## RESEARCH EXPERIENCE

1. **Embedded Toroidal Inductors for 12V to 1V and 48V to 1V Integrated Voltage Regulator** May 2020 – Present  
**3D Systems Packaging Research Center, Georgia Institute of Technology** | Atlanta – Georgia  
Fabrication of inductors on metal polymer composites using Semi-Additive Patterning process
  2. **Electroless deposition of Ni-P thin films on activated quartz substrate** *May 2018 - July 2018*  
**Indian Institute of Technology, Madras** | Chennai – India
    - Developed the kinetics for the process to develop a 50 nm thin film and studied the thermal stability of the film
    - Characterized the thin film using optical profilometry, SEM, XRD, EDS, and UV-Visible spectroscopy
    - Obtained a transparent (transparency >85%) semi conducting Phosphorous doped Ni<sub>x</sub>O<sub>y</sub> after annealing
    - Annealed film was crystalline showing XRD peaks of non-stoichiometric Nickel Oxides
    - Concluded that higher the pH of the bath, faster is the kinetics of the deposition. Higher transparency after annealing at same temperature obtained for lower pH values
  3. **Synthesis and characterization of Zn/ Mg - F co-substituted hydroxyapatite** *October 2018 - May 2019*  
**National Institute of Technology, Tiruchirappalli** | Tiruchirappalli – India
    - XRD, FTIR and STEM characterization techniques were used to analyze the synthesized hydroxyapatite powders
    - STEM analysis revealed nano-plates morphology of the hydroxyapatite powders with fluorine co-doped showing blunt edges and FT-IR confirmed substitution of F<sup>-</sup> in place of hydroxide ions
    - Achieved close to 50% reduction in beta-tri calcium phosphate phase detrimental to bio-medical applications in annealed powders containing fluorine against annealed powders not containing fluorine
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## AWARDS, ACHIEVEMENTS & CO-CURRICULAR ACTIVITIES

1. Work on hydroxyapatite published in "**Materials Today: Proceedings**" journal ([doi.org/10.1016/j.matpr.2019.09.128](https://doi.org/10.1016/j.matpr.2019.09.128))
  2. Second author of the work titled "**Transparent conducting p-type Nickel Oxide Thin films via a two-step synthesis route**" which was presented in International Conference on Recent Trends in Materials Science and Technology held in Thiruvananthapuram, India
  3. **Headed the Media Relations** team of Pragyan 2019 (ISO certified non-profit student run organization) where I led 20 coordinators to acquire partnerships with international and national level media houses
  4. Recipient of INSPIRE Award from Department of Science and Technology, Government of India in the year 2013 for outstanding performance in the subject of science
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