

### **Personal Information**

Name	Dr. C Venkata Subba Reddy
Years of Experience	Teaching: 2.5 years Research: 05 years
Email Id	<a href="mailto:venkatasubbareddy@bvrithyderabad.edu.in">venkatasubbareddy@bvrithyderabad.edu.in</a>
Areas of Specialization	Power electronics and electric drives



### **Educational Qualifications**

Doctoral Degree	Ph.D	Power Electronics Drives, NIT Warangal.
PG Degree	M.Tech	Power Electronics, RGM CET Nandyal
UG Degree	B.Tech	Electrical & Electronics Engineering, AITS Tirupati

### **Papers Published**

#### **International Journal Publications**

1. **V. S. Reddy Chagam** and S. Devabhaktuni, "An Isolation Transformer-less Single DC Source fed Dual 5-leg Inverter Controlled 5-Phase Induction Motor with Modified Direct Torque Control," in **IEEE Latin America Transactions**, vol. 22, no. 3, pp. 229-239, March 2024, doi: 10.1109/TLA.2024.10431418.
2. **V. s. r. Chagam redd** and S. Devabhaktuni, "Reduction of Stator Flux Ripple and Current Harmonic Distortion using Constant Switching Flux Controller-based DTC of Five-Phase Induction Motor," in **IEEE Latin America Transactions**, vol. 21, no. 8, pp. 915-924, Aug. 2023, doi: 10.1109/TLA.2023.10246341.
3. **V. S. Reddy** and S. Devabhaktuni, "Enhanced Low-Speed characteristics with Constant Switching Torque Controller-based DTC Technique of Five-Phase Induction Motor Drive with FOPI Control," in **IEEE Transactions on Industrial Electronics**, doi: 10.1109/TIE.2022.3227275.
4. N. Rayavarapu, S. Devabhaktuni and **V. S. R. Chagam Reddy**, "Minimization of Flux and Torque Ripples of FPOEW Induction Motor with FCS-MPTC using Synthetic Voltage Vectors," in **IEEE Latin America Transactions**, vol. 22, no. 11, pp. 933-944, Nov. 2024, doi: 10.1109/TLA.2024.10735446.

#### **International Conference Publications:**

1. **V. S. Reddy C** and S. Devabhaktuni, "Improved Low-Speed Performance of DTC controller-based Dual Voltage Source Inverter fed Five-Phase OEW Induction Motor," 2022 **IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES)**, Jaipur, India, 2022, pp. 1-4, doi: 10.1109/PEDES56012.2022.10080521.

#### **National Conference Publications:**

1. **C. Venkata Subba Reddy**, S. Devabhaktuni and N. Rayavarapu, "A Modified Lookup Table-Based DTC of a 5-Phase Open-End Winding Induction Motor to Reduce Flux Ripple and Torque Ripple," 2023 11th **National Power Electronics Conference (NPEC)**, Guwahati, India, 2023, pp. 1-6, doi: 10.1109/NPEC57805.2023.10384976.
2. **Reddy, C.V.S.**, Devabhaktuni, S. (2022). Low Speed Performance Improvement of Dual VSI Fed Direct Torque Controlled Five Phase Open-End Winding Induction Motor. In: Kumar, S., Singh, B., Singh, A.K. (eds) *Recent Advances in Power Electronics and Drives*. Lecture Notes

in Electrical Engineering, vol 852. Springer, Singapore. [https://doi.org/10.1007/978-981-16-9239-0\\_20](https://doi.org/10.1007/978-981-16-9239-0_20)

3. V. S. R. C and S. Devabhaktuni, "Low speed Performance improvement of Constant Switching Frequency DTC of Five phase Induction Motor," 2021 *National Power Electronics Conference (NPEC)*, 2021, pp. 01-06, doi: 10.1109/NPEC52100.2021.9672519.
4. N. Rayavarapu, S. Devabhaktuni and C. V. Subba Reddy, "Weighting Factor Less Model Predictive Flux Control of Five-Phase Induction Motor with Maximum Torque per Ampere," 2023 11th *National Power Electronics Conference (NPEC)*, Guwahati, India, 2023, pp. 1-6, doi: 10.1109/NPEC57805.2023.10384900.

### **Description of the Ph.D. Research Projects**

- In this project, the steady state performance of 5-phase induction motor improved with the implementation modified Direct Torque Control schemes without disturbing the dynamic performance of the drive. The 5-phase induction motor have special features like fault-tolerance, improved efficiency, high torque density, reduced per-phase power w.r.t conventional 3-phase induction motor drives.
- Developed and designed a constant switching torque controller in place conventional hysteresis torque controller to improve the low-speed performance in terms of reduced torque ripple, current %THD and validated with the experimental hardware setup containing a 5-phase induction motor drive, inverter modules, a sensing unit, and a dSPACE controller along with a control desk.
- Developed and designed a constant switching flux controller and constant switching torque controller in place of conventional hysteresis-based torque and flux controllers for 5-phase induction motor to reduce both stator flux ripple and torque ripple and current harmonics and validated experimental hardware setup containing a 5-phase induction motor drive, inverter modules, a sensing unit, and a dSPACE controller along with a control desk.
- Developed a modified lookup table-based hysteresis Direct Torque Control for dual inverter fed 5-phase open end winding induction motor to reduce the torque ripple, flux ripple and current harmonics along with elimination of common mode voltage/common mode current. This modified DTC technique is validated with experimental hardware setup containing a 5-phase open end winding induction motor drive, inverter modules, a sensing unit, and a dSPACE controller along with a control desk.

### **Research Interests:**

- Power Electronic Converters such as DC-DC, DC-AC, AC-AC circuits Design
- Multi-Phase Induction Motor and Permanent Magnet Synchronous Motor Drives Control,
- Design of Control circuits for closed loop control schemes
- Real Time Interfacing and control of Hardware systems with the Software MATLAB/Simulink

### **Technical Skills:**

- Programming/Data analysis tools: MATLAB, Basics of Embedded Coding
- Simulation Tools: MATLAB/Simulink, PLEXIM
- RTI Tools: dSPACE1104, DS1202, TMS320F28379D
- Drawing Tools: MS Visio, Draw.io
- Documentation: MS Office

### **Achievements**

- Secured **Best paper award** for the session in National Power Electronics Conference-2021 conducted by IIT Bhuvanewar

- Received **MHRD Govt. of India Fellowship** during pursual of Master and Doctoral degrees.
- Secured **Elite** Certificate for Electrical Machines in National level NPTEL Exam
- Qualified the National level **Graduate Aptitude Test in Engineering (GATE)** exam in 2013, 2016, 2018

***Extra/Co-curricular Activities:***

- Worked as **Reviewer** for the leading journals IEEE Transactions on Industrial Electronics, IEEE Transactions on Transportation and Electrification.
- Worked as **Reviewer** for the Technical papers for the Conferences ICPC<sup>2</sup>T, NPEC, etc.

***FDP's Attended:***

1. Attended One-week Professional Development program on “Smart Mobility: The Future of Autonomous Electric vehicle” Organised by BVRIT HYDERABAD College of Engineering for Women 11<sup>th</sup> -16<sup>th</sup> November 2024.
2. Attended one week FDP on “Applications of computational science, Artificial Intelligence Algorithms in Electrical Engineering” organised by MLR Institute of Technology, Dundigal, Hyderabad during 1<sup>st</sup> -6<sup>th</sup> April 2024.
3. Attended one week FDP on “Recent Advances in Control and Instrumentation with Integration of Artificial Intelligence: Opportunities, Challenges, and Implications” organized by Department of Basic Science and Humanities (BSH), UEM Kolkata in association with HRDC, IEM-UEM Group and technically co-sponsored by IEEE JOINT CSS-IMS Kolkata Chapter, India held from 1st April to 5th April, 2024.
4. Attended one week FDP on “Artificial Intelligence Applications to Electrical Vehicles” jointly organised by GMR Institute of Technology, Rajam and VR Siddartha Engineering College, Vijayawada during 4<sup>th</sup>-9<sup>th</sup> March 2024.
5. Attended a 8 week Certification program on “Digital Controller for Power Applications” conducted by Indian Institute of Technology Madras from 20th Dec, 2023 to 17th Feb , 2024