**Christian Klumpner, Peter Nielsen, Ion Boldea, Frede Blaabjerg, Paul Thargersen**

Institute of Energy Technology, Aalborg University, Denmark, Danfoss Drives

**2002**

Matrix Converter Motor (MCM) for Industry Applications

First integrated regenerative frequency converter motor for industry applications, based on a matrix converter topology.

**2003**

*Converter Topologies the Next Generation of Integrated Motor Drives*

ASD converter topologies (inverter is the same, rectifier and dc link/passive sides are different)

No modularity, no hardware

**2003**

*Evaluation of the Converter Topologies suited for Integrated Motor Drives*

Same with above

**P W Wheeler, J C Clare, L Empringham, Bradley, S Pickering, D Lampard, K J, M Apap**

University of Nottingham, School of Electrical and Electronic Engineering Nottingham, UK

University of Malta, Department of Electrical Engineering, Malta

**2005**

*A Fully Integrated 30kW Motor Drive Using Matrix Converter Technology*

Targeted at pump and fan applications, induction motor

Fully tested and evaluated demonstrations of the power converter and the cooling arrangements

30 kW prototype, power electronics housed in a re-designed End Plate, IGBT based

415 Volt, 50 Hz supply.

**N.R. Brown, T.M. Jahns, R.D. Lorenz**

Wisconsin Electric Machines and Power Electronics Consortium Department of Electrical and Computer Engineering University of Wisconsin - Madison Madison, WI 53706, USA

**2007**

*Power Converter Design for an Integrated Modular Motor Drive*

IGBTs 10 kHz, 2.7 kW, Five-phase

***Sykora, B. J., Jahns, T. M., and Lorenz, R. D., “Development of a Demonstrator Model of an Integrated Modular Motor Drive,” in Proc. 2008 NSF-CPES Annual Conference, Blacksburg, VA, April 2008.***

**2008**

**<3 kW IMMD**

**Alberto Tenconi, Francesco Profumo, Stefan E. Bauer, and Martin D. Hennen**

Dipartimento di Ingegneria Elettrica, Politecnico di Torino, 10129 Turin, Italy

Durotron, 51109 Cologne, Germany

Institute for Power Electronics and Electrical Drives, RWTH Aachen University, Aachen, Germany

**2008**

*Temperatures Evaluation in an Integrated Motor Drive for Traction Applications*

Liquid-cooled totally integrated drive unit Integrated Propulsion MOTor (IPMOT), 24-kW

Four-phase switched reluctance motor (SRM), IGBT based

**Adam Shea T.M. Jahns**

Wisconsin Electric Machines and Power Electronics Consortium (WEMPEC) Electrical and Computer Engineering University of Wisconsin - Madison Madison, WI, USA

**2014**

*Hardware Integration for an Integrated Modular Motor Drive Including Distributed Control*

This was the first IMMD prototype unit that included a dedicated controller in each module.

**Jiyao Wang, Ye Li, Yehui Han**

Dept. of Electrical and Computer Engineering University of Wisconsin- Madison Madison, WI, USA

**2013**

*Evaluation and Design for an Integrated Modular Motor Drive (IMMD) with GaN devices*

Series-connected inverter segments, wide bandgap 200V GaN MOSFETs (**ilk**)

Eliminating inverter heat sink and optimizing the choice of DC-link capacitors, interleaving

**Jiyao Wang, Yehui Han**

Dept. of Electrical and Computer Engineering University of Wisconsin- Madison Madison, WI, USA

**2014**

*A New Concept of Multilevel Converter Motor Drive with Modular Design and Split Winding Machine*

3-level NPC, 3-level FC, 2n+1-level CHB. A new multilevel converter topology

**Yehui Han**

Dept. of Electrical and Computer Engineering University of Wisconsin- Madison Madison, WI, USA

**2014**

*Design, modeling, and control of multilevel converter motor drive with modular design and split winding machine*

Bi sürü topolojiden bahsetmiş, Öncekilerin aynısı.

**Jiyao Wang, Yehui Han**

Dept. of Electrical and Computer Engineering University of Wisconsin- Madison Madison, WI, USA

**2015**

*A Class of Modular Multilevel Motor Drives with Design Flexibility and Reduced Components Number*

**Jiyao Wang, Ye Li, and Yehui Han**

Department of Electrical and Computer Engineering, University of Wisconsin–Madison, Madison, USA

**2015**

*Integrated modular motor drive design with GaN power FETs*

**Georges Engelmann, Maurice Kowal, Rik W. De Doncker**

Institute for Power Electronics and Electrical Drives RWTH Aachen University Aachen, Germany

*A Highly Integrated Drive Inverter using DirectFETs and Ceramic DC-Link Capacitors for Open-End Winding Machines in Electric Vehicles*

**2015**

**Robert Abebe, Gaurang Vakil, Giovanni Lo Calzo, Tom Cox, Chris Gerada, Mark Johnson**

Department of Electrical and Electronic Engineering University of Nottingham Nottingham, UK

**2015**

*FEA Based Thermal Analysis of Various Topologies for Integrated Motor Drives (IMD)*

Mounting options for IMMD: Surface Mount Integration, End Plate Mount Integration and Stator Iron Mount Integration.