

The Hybrid Synchronous Machine Of The New Bmw I3 I8

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The Hybrid Synchronous Machine Of

Hybrid excitation synchronous machine adaptive speed region control and experimental verification. With the merits of permanent magnet (PM) machine combining the possibility of controllable flux ...

(PDF) A new topology of hybrid synchronous machine

The present invention relates to a hybrid excitation-type synchronous machine, which includes a field coil and permanent magnets to generate field magnetic flux of a rotor. BACKGROUND OF THE...

US20090295249A1 - Hybrid-type synchronous machine - Google ...

Synchronous machine 100 is a generator with hybrid excitation arranged to receive variable-speed rotational energy 16 (shown in FIG. 2) from a rotation source 18 and generate constant voltage output power 20 using rotational energy 16, which synchronous machine 100 provides to one or of the power-consuming devices 12 connected to synchronous machine 100 through power distribution bus 14.

US Patent for Hybrid synchronous machines Patent (Patent ...

Fundamental Principle of Hybrid Excited Synchronous Machines Hybrid excited synchronous machines are those which use two excitation flux sources: permanent magnets (PM) as well as field coil excitation source. The goal behind the association of both sources is to combine the advantages of both PM machines and wound field synchronous machines.

On the Use of Hybrid Excited Synchronous Machines (HESM ...

THE HYBRID-SYNCHRONOUS MACHINE OF THE NEW BMW I3 & I8 CHALLENGES WITH ELECTRIC TRACTION DRIVES FOR VEHICLES WORKSHOP UNIVERSITY LUND Dr.-Ing. J. Merwerth BMW Group, München BMW i3. VEHICLECONCEPT. Maximum speed v max: 150 km/h Acceleration 0-100 km/h: 7.2 s Range KV01 cycle: 190 km FTP72 cycle: 225 km (140 mls) Vehicle weight m Fzg: 1195 kg

THE HYBRID-SYNCHRONOUS MACHINE OF THE NEW BMW I3 & I8

Description. The Hybrid Excitation PMSM block represents a hybrid excitation synchronous machine with a three-phase wye-wound stator. Permanent magnets and excitation windings provide the machine excitation. The figure shows the equivalent electrical circuit for the stator and rotor windings.

Hybrid excitation synchronous machine with three-phase wye ...

Permanent magnet synchronous machines are known as a good candidate for hybrid electric vehicles due to their unique merits. However they have two major drawbacks i.e. high cost and small speed...

(PDF) Design of a Permanent Magnet Synchronous Machine for ...

Synchronous Machine. Synchronous Machine constitutes of both synchronous motors as well as synchronous generators. An AC system has some advantages over DC system. Therefore, the AC system is exclusively used for generation, transmission and distribution of electric power. The machine which converts mechanical power into AC electrical power is called as Synchronous Generator or Alternator.

What is a Synchronous Machine? - its Basic Principles ...

Type. Synchronous motors fall under the more general category of synchronous machines which also includes the synchronous generator.Generator action will be observed if the field poles are "driven ahead of the resultant air-gap flux by the forward motion of the prime mover". Motor action will be observed if the field poles are "dragged behind the resultant air-gap flux by the retarding torque ...

Synchronous motor - Wikipedia

Synchronous machines are commonly used as generators especially for large power systems, such as turbine generators and hydroelectric generators in the grid power supply. Because the rotor speed is proportional to the frequency of excitation, synchronous motors can be used in situations where constant speed drive is required.

Chapter 6. Synchronous Machines

Andrew Dixon BSc, MSc, PhD, CEng, MIET, MIEEE, in Modern Aspects of Power System Frequency Stability and Control, 2019. 10.1.8 The "virtual synchronous machine" The "virtual synchronous machine " (VSM) is a concept related to the idea of "synthetic inertia" that was mentioned in Section 10.1.6.The basic idea here is that the overall properties of a "synchronous machine," such ...

Synchronous Machine - an overview | ScienceDirect Topics

Hybrid excitation synchronous machines (HESMs) are electric machines that use two excitation flux sources: Permanent magnets (PMs) and field coil excitation sources. The association of both excitation sources aims to combine advantages of PM machines and wound field synchronous

Study of a Hybrid Excitation Synchronous Machine: Modeling ...

The research study presented here concerns the design of a three phase permanent magnet synchronous machine (PMSM) used for the propulsion of an electric scooter. It is widely recognized that the common solution, the dc motor, has usually poor performances against ac motor.

Global Design and Optimization of a Permanent Magnet ...

PSM - Permanent Magnet Synchronous Motors High Performance Combined with Efficiency. Thanks to the use of permanently magnetic materials, permanent magnet synchronous motors, also called "permanently excited synchronous motors" or "regulated synchronous motors", enable extremely high levels of utilisation and efficiency (especially in the partial-load range) to be employed.

SERVAX | Technology - PSM - Permanent Magnet Synchronous ...

Synchronous Machine SI Fundamental block — Specify stator, field, and damper windings fundamental parameters (resistances, leakage inductances, and mutual inductances) in SI (Ω and H). When you enter parameters in SI, the RL parameters of field and damper windings are not the actual field RL values of the machine but the RL values referred to the stator.

Synchronous Machine - MathWorks

Ernesto Inoa, Ph.D. Dissertation: A New High-Frequency Injection Method for Sensorless Control of Doubly-Fed Induction Machines, 2012. Zhendong Zhang, Ph.D Dissertation: Permanent Magnet Synchronous Machine Based Traction Drive Design for Hybrid Scooter Considering Control Nonlinearities and Compensations, 2013.

Alumni | Power Electronics & Electrical Machines

This research focuses on the development of a wound field and hybrid synchronous motors as an alternative to interior permanent magnet or induction machines for EV traction applications. Power to the field winding will be provided using brushless capacitive coupling.

Research - Office of Technology Services (OTS) | Illinois ...

An apparatus and method are provided to execute synchronous shifting in a powertrain system having multiple torque-generative devices each operable to independently supply motive torque to the...