

4/3/2019 Minutes:

Park and Clarke Transformation:

Hess: V_d is proportional to V_{LN} , q proportional to V_{LL}

Wold: 3 things for Design Review

1. Motor Modifications
2. Simulation and Research
3. Circuit Design

Wold: Motor Modifications

New stator is needed, and extending the leads to fit through the housing will be required. Next step is mounting the alternator with a DC machine in a motor-generator setup.

Wold: Circuit Design

What's currently needed is an amplifier and an ADC for signal processing of the shunt resistor output. For demonstration purposes, there are enough through hole components to breadboard it.

Wold: History of the Project

Explained the choice between DC Machine and AC Machine. Further explained the choice between PMSM and alternator. Purpose of the project: determine the performance limits of the alternator as a motor.

Hess: Have prepared a precise definition of 'performance limits,' and what we assume to be causing them.

Design Review Date (tentatively): April 18 3:30 PM, Panorama Room. To be confirmed or modified at next senior design meeting.

For Hai: Begin Simulink Simulation. Work with Andy Miles to learn the software and design a controller

For Armando: Create Circuit Design in eeschema. Get BOM and order parts by end of the week.

Hess: Synchronous machine basics

Multi-pole rotor requires multi-pole stator. Number of poles multiply torque and divide speed.