**~~Real Time Simulation Lab (RTSL)~~**

**Smart Distribution Research Lab (SDRL)**

**Location**

~~CPH 2382A~~

E5 5008

**Management**

Director: Ehab El-Saadany (ehab@uwaterloo.ca; x33035)

Lab tours: Maher Abdelkhalek (maher.abdelkhalek@gmail.com ; x37056)

**Users**

* Graduate students
* Power Group members

**Research**

* Real time simulation and hardware in the loop studies
* Power quality studies
* Wind emulator, electronic interfacing, controllable electronic loads, and harmonic generators and analyzers

## Selected Projects

**Equipment**

* Two RTS housing cabinets
* Three 12-core 3.33GHz each RTS PC’s
	+ Key features:
		1. Real-Time Digital Simulators and control prototyping systems for power grids, power electronics, motor drives and other mechatronic systems.
		2. Design and test controllers for a wide variety of applications including small power converters, hybrid electric drives, large power grids and renewable energy systems
* Compact cabinet for high levels of AC and DC power supply.
	+ Key features:
		1. 30kVA
		2. Combines AC/DC source and power analyzer functions
		3. Powerful output transient generation
		4. Arbitrary waveform generation
		5. Harmonic analysis of Voltage and Current
* Host computer Intel® CoreTM i5 CPU 4.00GB (RAM)
	+ Includes:
		1. 14-core license for RTS
		2. Matlab (fully integrated with RTS)
		3. GAMS
		4. PSCAD
* Smaller current and voltage supplies (AC & DC)
* Measuring equipment (Voltage, Current, and Power AC and DC)
* Controllable AC/DC loads
* Harmonic Analyzer
* Controlled High power function generator
* Wind Emulator

**Supporting Partners**

* NSERC-CRC (support: funding)
* CFI/ ORF (support: funding)

**Access Rights**

### Researchers

* Contact Professor El-Saadany

### General Public

* None (Lab is not for general public)

### If you haven’t already supplied a list of key equipment in your lab, please list them below.

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* Controllable AC/DC loads
* Harmonic Analyzer
* Controlled High power function generator
* Wind Emulator