



Swamp Optics, LLC  
6300 Powers Ferry Rd #600-345  
Atlanta, GA 30339-2919  
Federal ID #58-2663197  
404-54swamp or 404-547-9267  
FAX POs to 866-855-4518 FAX  
[Linda.Trebino@swampoptics.com](mailto:Linda.Trebino@swampoptics.com)  
[www.swampoptics.com](http://www.swampoptics.com)

Since Oct 2001:

### ***Sole Source Justification for GRENOUILLE and FROG***

Swamp Optics is the sole manufacturer of the award-winning GRENOUILLE, which measures ultrashort laser pulses more completely and more easily than any device in history.

An alternative (but obsolete) device used previously by researchers to characterize ultrashort laser pulses is an autocorrelator (invented in 1968). However, an autocorrelator only roughly indicates the pulse width; every pulse (whether simple or complex) has a similar, smooth and structureless autocorrelation trace. One must guess a particular pulse shape (usually without justification) in order to estimate a pulse length.

GRENOUILLE, on the other hand, measure the full pulse intensity and phase vs. time and the spectrum and spectral phase vs. wavelength. It does so for both simple and complex ultrashort laser pulses and with great accuracy.

Swamp Optics' GRENOUILLE is the only pulse-measurement device that also measures the pulse's spatial profile (the intensity vs. both transverse spatial coordinates). They are also the only devices available that quantitatively and accurately measure the two most important spatio-temporal distortions, spatial chirp and pulse-front tilt. These distortions are often quite severe and cause significant degradation in all applications.

GRENOUILLE is also the only pulse-measurement devices that requires no alignment and has a simple and foolproof procedure for aligning the input beam. Aligning other devices can waste many hours of time.

GRENOUILLE is also less expensive than alternatives.

Invented, developed, manufactured, and distributed by Swamp Optics!  
All products by Swamp Optics are warranted to be defect-free for one year.