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Fokker-Planck Techniques for non-Gaussian RF Signal Sensing

1. **Research Title:** Fokker-Planck Techniques for non-Gaussian RF Signal Sensing
2. **Individual Sponsor:**

Dr. Robert Ewing, AFRL/RYMD
 WPAFB, OH 45433-7333
robert.ewing.2@us.af.mil

3. **Academic Area/Field and Education Level**
 Electrical Engineering and Computer Science/Mathematics
 Communications, Control and Signal Processing (MS or PhD level)
4. **Objectives:** Developing the methodology of algorithms for characterizing subthreshold signals in contested spectrum non-Gaussian environments.
5. **Description:** Simulation toolboxes for this technique to the domain of distributed RF sensing integration is required. The solutions of the PDEs can be optimized and solved by special techniques. Through the use of non-Gaussian RF signal sensing, optimal decision rules and improved RF detection will occur by the following:
 - (a) Optimizing RF spectrum detection and decision methods incorporating the Fokker-Planck equation to model time-varying probability density functions.
 - (b) Developing parametric or non-parametric (data independent models) RF detection methods via maximum likelihood or other new statistical methods using probability density estimation algorithms.
 - (c) Examine the detection problem in a distributed sensing system.
6. **Research Classification/Restrictions:** U.S. Citizens
7. **Eligible Research Institutions:** Indicate to what organizations this topic should be provided



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