

1163-AD-1242 **Shari Moskow***, 321 Llandrillo Rd, Bala Cynwyd, PA 19004. *Inverse Problems: Determining the Equation from the Solution.*

Mathematicians and scientists are often looking for the solution to a known partial differential equation. However, sometimes rather than solving the equation, we are working backwards from data to find the equation itself. This kind of inverse thinking shows up in areas like medical imaging, remote sensing, nondestructive testing, and many other areas of science. Specialists may be using this approach to find a tumor in a breast or to locate oil in a geological reservoir. However, the smallest miscalculations in the acquired data can lead to large errors in defining the equation's parameters. We will discuss the challenges facing scientists and mathematicians in solving these "inverse problems." (Received September 15, 2020)