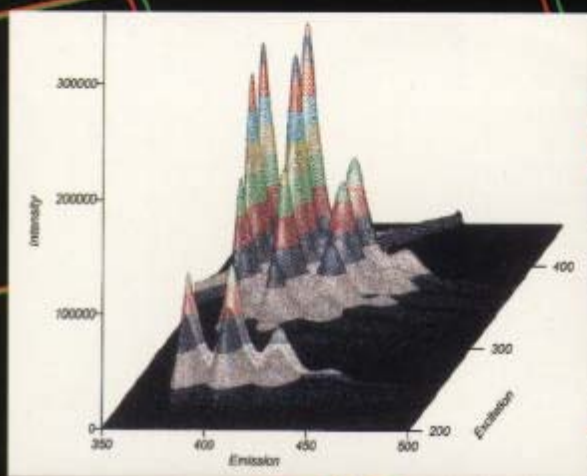


3D FLUORESCENCE

Now—completely characterize your sample
in less than a second!

The Easiest Way to Collect Data
The Fastest Way to Measure Fluorescence



What

3D FLUORESCENCE

Means to You

Three dimensional fluorescence on the SPEX 3D spectrofluorometer delivers the total excitation/emission matrix (EEM) of a fluorescence sample—and it's recorded with a single measurement!

Conventional spectrofluorometers can provide EEM's by scanning the emission spectrum, point by point, while exciting at one wavelength. After storing this information, then changing the excitation wavelength, the emission spectrum is scanned again. This procedure must

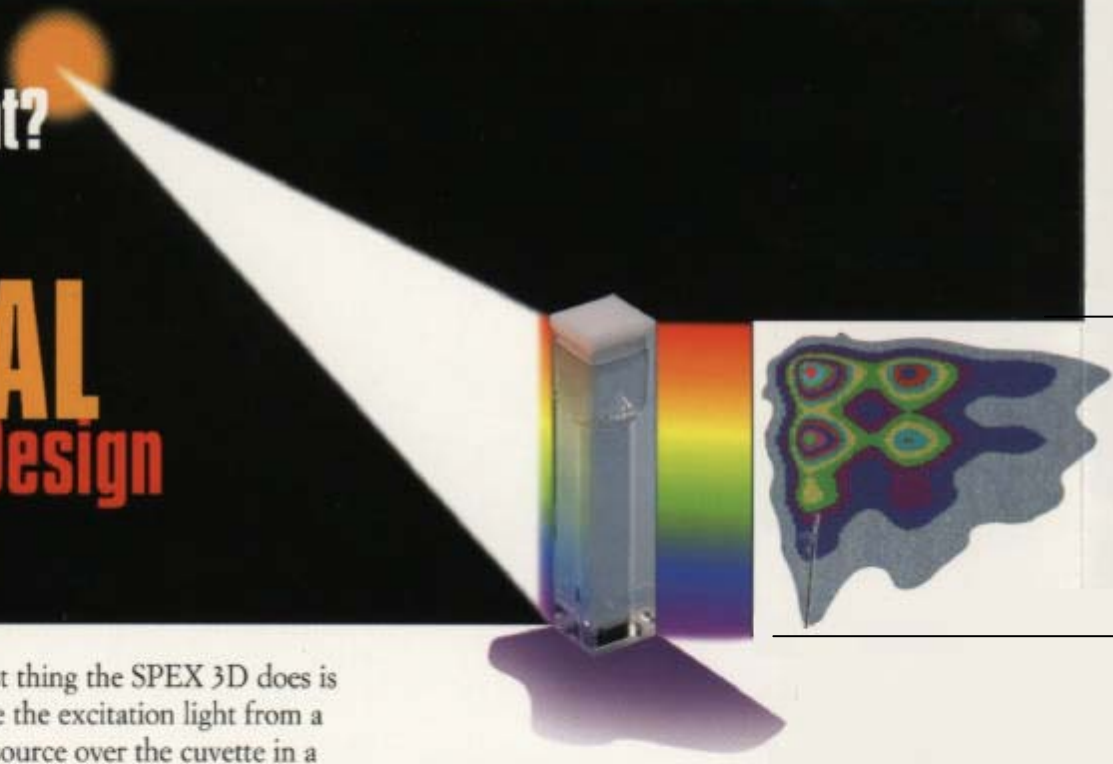
be repeated, over and over again, until the full EEM is assembled—this can take minutes, hours, or longer—and all the while the sample is changing, aging, and being photobleached.

And it's impossible to achieve any kinetics data on EEM's without 3D!

With the SPEX 3D, the measurement is done as quickly as one second, without neglecting a single data point!

How Do We Do That?

Unique
OPTICAL
Design

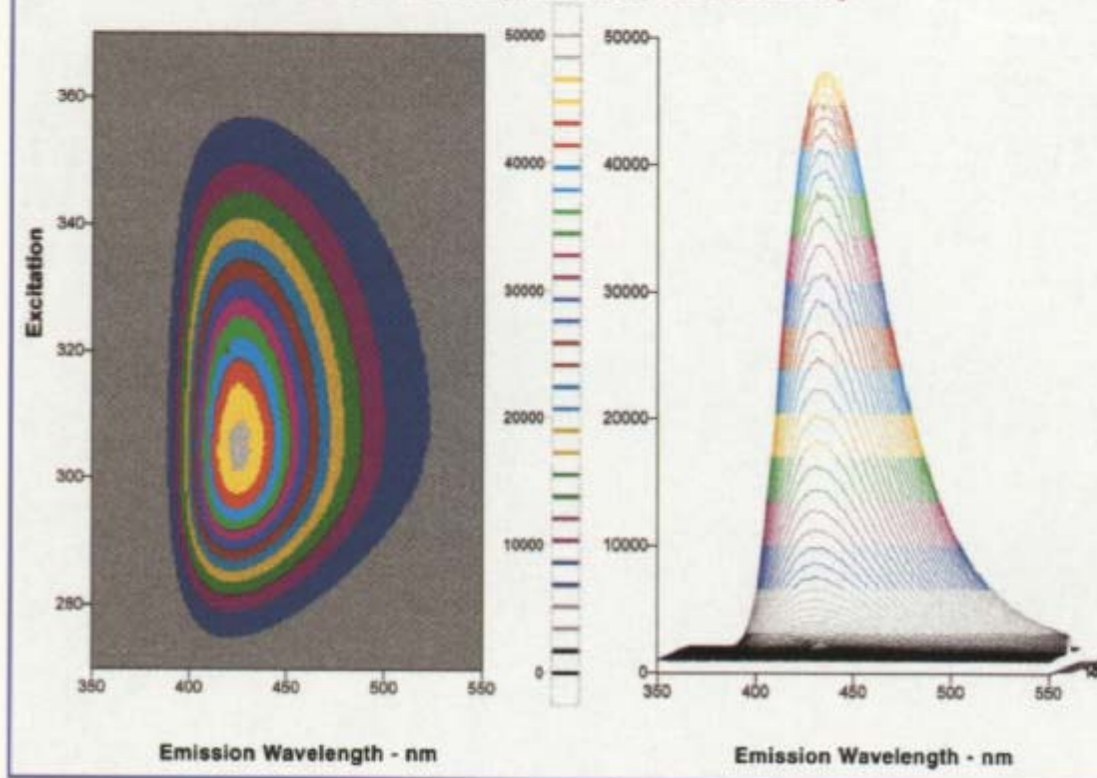


The first thing the SPEX 3D does is disperse the excitation light from a xenon source over the cuvette in a vertical line. Because of this, the full spectrum excites any homogeneous sample placed in the sample compartment. The resulting fluorescence emission is then dispersed horizontally over the active area of a rectangular CCD, a charge-coupled device which is, essentially, a two dimensional array of light detectors. Now the horizontal axis of the CCD records the emission spectra (dimension one) at different excitation wavelengths (the vertical axis, dimension two). Of course, the intensity at each wavelength pair is the third dimension—your data!

Only Instruments SA (ISA) has the unique combination of resources to provide all the necessary components to build this exceptional instrument: Optics, special gratings, detector and data acquisition system are all designed and manufactured by ISA. This, combined with decades of fluorescence experience, produce an instrument that will speed you through your work, whether it's research or routine characterization.

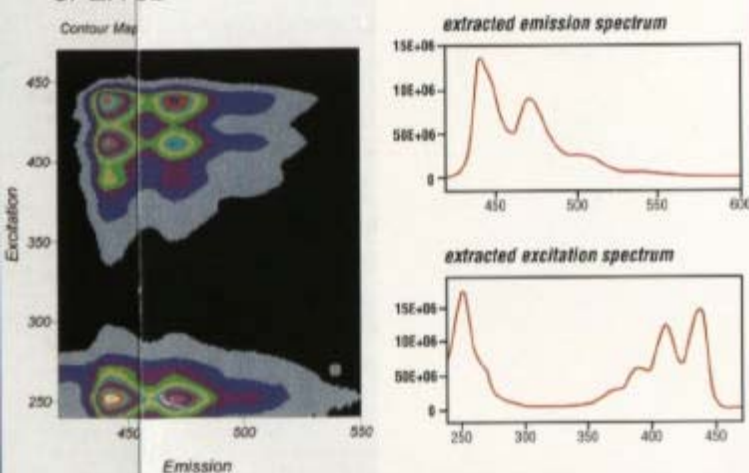
3D Means DATA DATA DATA DATA

SPEX 3D 200uL (100uL HPLC FlowCell)



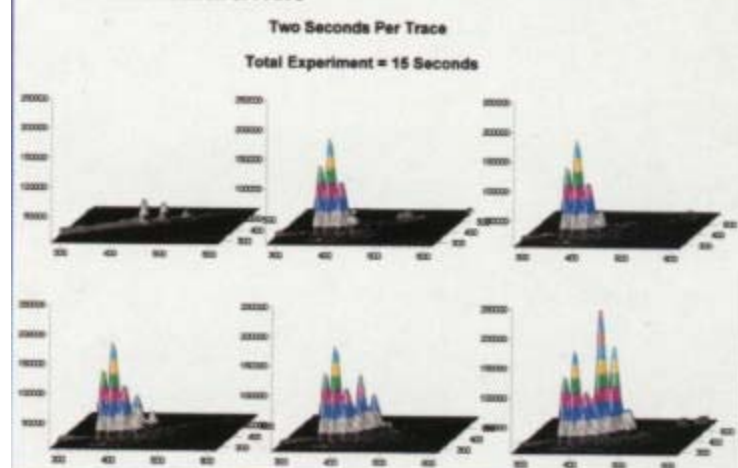
This spectrum shows the complete EEM for a novel potential drug. Since the entire excitation/emission matrix is shown, multiple wavelength graphs can be used to screen for many potential applications simultaneously... Not only is the compound safe from the effects of photo-bleaching, experiments can be conducted in an HPLC flow-cell. By mating the drug interaction with live cells, the drug may be selected, or rejected, as a potential candidate for several health-care objectives at once.

SPEX 3D



All the Data, All the Time. Since the EEM contains all the information about the fluorescence characteristics of your sample, you can extract many different formats of data presentation. By slicing through the 3D representation, we can analyze both excitation and emission spectra easily and quickly, as shown in this data from a poly-nuclear aromatic compound.

Accumulation of PAH's



This figure shows the complete EEM characterization of a water sample with accumulating Anthracene and Perylene (PAH) components as might be found in a sudden environmental spill. At first, only Anthracene is visible. After 15 seconds, the level of Anthracene stabilizes while another contaminant, Perylene, becomes detectable.