

Full-Field In-Line Quadrature Detection of Proteins

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Categories:

- Biomedical Engineering
- Biotechnology

Keywords:

- Assays
- BioCD
- Biomedical Engineering
- Biotechnology
- Chemical Proteomics
- Detection
- Diagnostics
- Genomics
- Genomics & Proteomics
- high throughput
- Proteins

Researchers at Purdue University have developed a new in-line quadrature BioCD system for detecting proteins such as for biological research, disease diagnostics, and proteomics and genomics applications. Current laser scanning techniques are often disturbed by disc wobble under high magnification and are often time-consuming when obtaining high-resolution images. In addition, laser scanning technologies are typically unable to image wet samples. The optic imaging system created by Purdue researchers includes a beam of radiation, a pixel array that detects the radiation in an image plane, and a biolayer that reacts with an analyte by converting phase modulation to intensity modulation that is detected and imaged by the pixel array. The device captures a sample image of the biolayer and a reference image of the reference surface to create a composite image. The reference intensity is linearly proportional to protein density for biological samples. In testing, the new system was able to analyze up to 25,000 protein spots with a detection limit 1 ng/mL as 32 unique assays.

Advantages:

- High Sensitivity
- Multipixel
- High Throughput

Potential Applications:

- Proteomics & Genomics
- Biological Research

-Disease Diagnostics

Technology Validation: In testing, the new system was able to analyze up to 25,000 protein spots with a detection limit 1 ng/mL as 32 unique assays.

People:

- Nolte, David D. (Project leader)
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Intellectual Property:

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