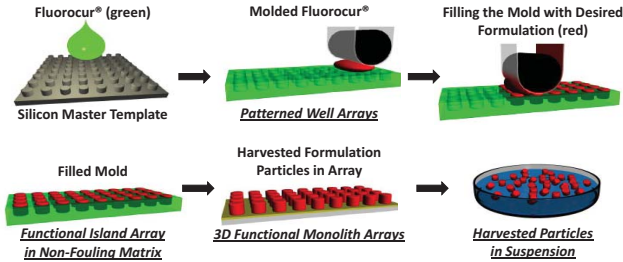


Particle Replication In Non-wetting Templates

- Brings the precision and control of semiconductors to life sciences and other markets
- Proprietary design and manufacturing platform to produce nanoparticles and films
- Monodisperse feature morphology designed into master template
- Readily scalable using proven roll-to-roll manufacturing process



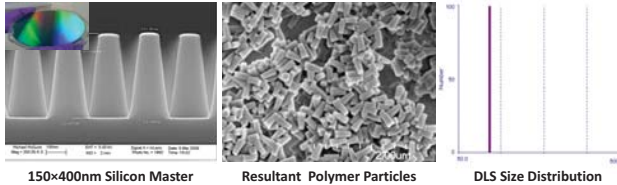
PRINT Manufacturing

Leveraging Roll-to-Roll Processes of Existing Technologies



Batch to Batch Consistency & Monodispersity

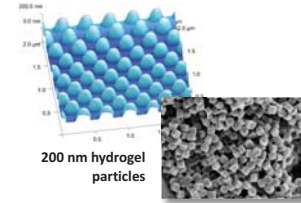
Every particle is identical ...day-to-day and year-to-year



PRINT Particles & Arrays for Diagnostics

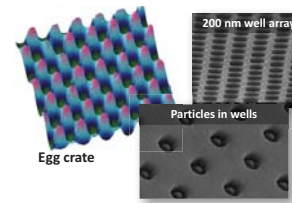
Particles

- Control of Size and Shape
- Consistency of product from batch to batch and year to year
- Chemical and structural latitude
- Tunable surface area characteristics
- Magnetic properties can be built in



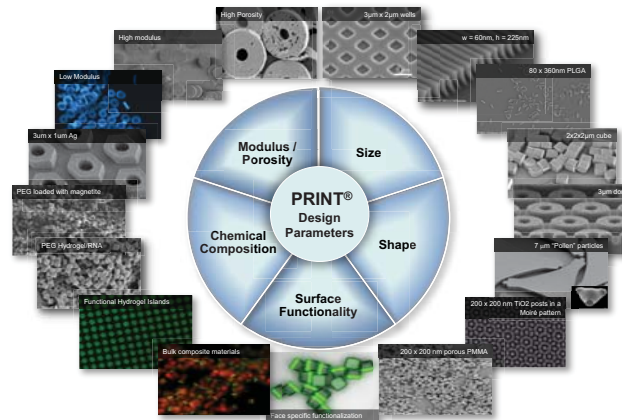
Micro- and Nano-wells & arrays

- Exquisite feature definition
- Low auto-fluorescence, non-biofouling
- Arrays can be arbitrarily functionalized
- Diverse substrate options
- Chemical and thermal stability



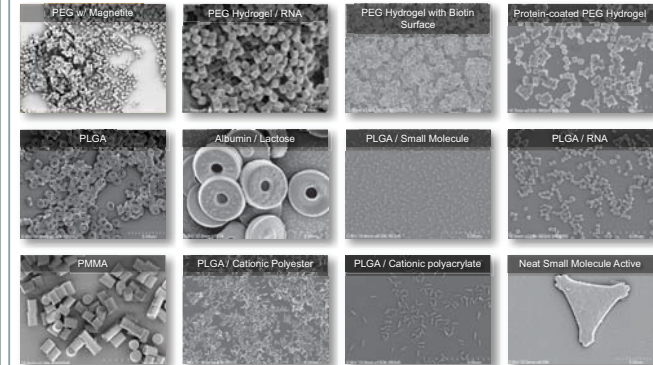
PRINT Platform Control

Independent and precise control of multiple particle design attributes



Particle Composition & Shape

Explore particle designs never before possible



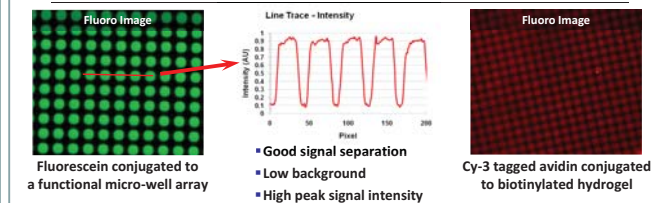
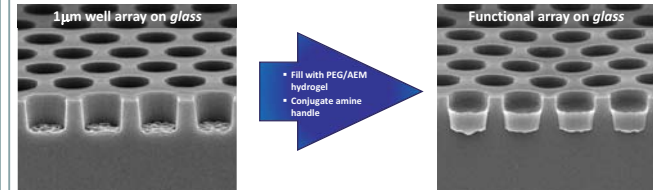
Independent Control

Size • Shape • Composition

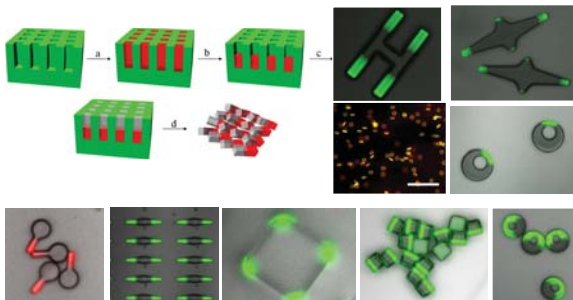
Bulk Chemical Functionality • Surface Chemical Functionality
Macro-Porosity • Micro-Porosity • Hydrogel Formation

Functional Array Technology

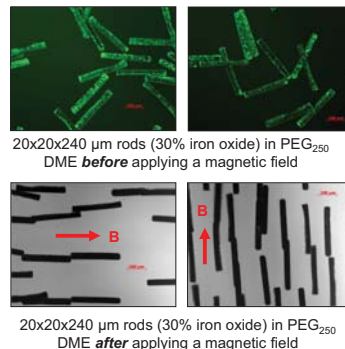
Functional Wells • Non-fouling Inter-space • Signal Isolation



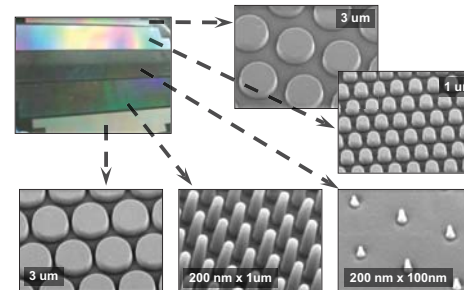
Multi-Component "Janus" Particles



Magnetic Particles



Single-Step Replication Multiple Particle Sizes and Shapes



Conclusions

The unique features of PRINT particles and films have the potential to offer multiple benefits for next generation sequencing technologies, including exquisite control of size and shape, vast compositional flexibility, and unprecedented batch-to-batch consistency. Particle functionality may be tuned to support bio-conjugation of targeted oligo nucleic acids, or through other moieties such as avidin/biotin coupling. Patterned well arrays may be fabricated in any lithographically defined size, shape, and pitch for capture substrates. Well arrays may be then be selectively filled with a functionalized material to yield reactive islands in a non-biofouling matrix.