

# Liekki Application Designer

## v3.3

### Design software

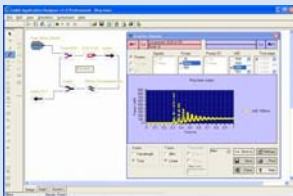
**LIEKKI**  
The Nanoparticle Fiber Company



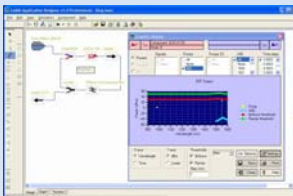
#### Liekki DND technology

Liekki uses its proprietary Direct Nanoparticle Deposition (DND) technology and long term experience of conventional fiber manufacturing technologies to provide customers with high-quality state-of-the-art fibers. Highly-doped Liekki fibers minimize required application fiber length, provide strong amplification, high efficiency, broad and flat gain profile, excellent beam quality, and reduced nonlinear effects.

#### Transient analysis



#### Nonlinear effects threshold



ISO9001:2000 certified  
04/2007/MH

Specifications subject to change without notice.

#### Product description

Liekki Application Designer (LAD) is a versatile design tool for fiber applications providing a strong platform for simulating and optimizing fiber amplifiers, amplify spontaneous emission (ASE) sources, and fiber laser systems. This software is based on precise algorithms that account for all the reflections in the system – especially crucial for accurate laser and ASE light source simulations. The simulation engine also accurately accounts for large mode area and highly doped fibers.

LAD v3.3 has an improved calculation algorithm that reduces the calculation time for systems having high reflectivity components, like fiber lasers (compared to LAD v3.2).

Other improvements include: better Monte Carlo analysis capability (very important when analyzing the manufacturability and tolerance sensitivity of a design), independent control of propagation modes in multimode analysis and more keyboard shortcuts. LAD v3.3 is fully compatible with RSoft's OptSim software.

These comes in addition to the existing features: transient analysis, SBS and SRS threshold estimations, inversion level calculation, Monte Carlo simulation, user defined refractive index profile, bending effects, etc. that make the Liekki Application Designer a very powerful tool for simulating high power continuous-wave (CW) and pulsed lasers.

LAD supports the full application design and analysis process from early research, prototype and pilot stage to full volume production. The user LAD could be product designer, optical engineer, research scientist or student.

#### Software environment

- Operating system: Windows XP/ 2000/NT/98
- User Interface: GUI
- Language: English

#### Recommended PC configuration

- Processor: Pentium 1GHz or faster
- 256MB of RAM or higher
- 100MB free hard disk space

#### Available components

##### Active Components

- Er doped fiber
- Double clad Er doped fiber
- Yb doped fiber
- Double clad Yb doped fiber

##### Sources

- Pump
- Pump DC
- Signal

##### Fiber Junctions

- Ideal connection
- Splice
- Connector

##### Passive Components

- Coupler
- WDM
- Isolator
- Filter
- Mirror
- Fiber Grating
- Attenuator
- Passive SM fibers
- Passive DC fibers
- Input and output interfaces for OptSim software

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# Liekki Application Designer v3.3 Design software

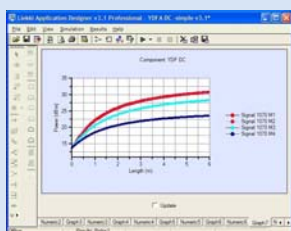
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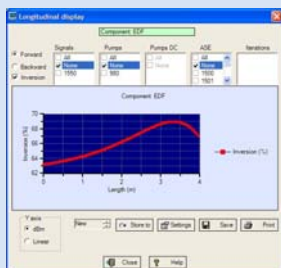
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## Multimode signal



## Inversion level along doped fiber



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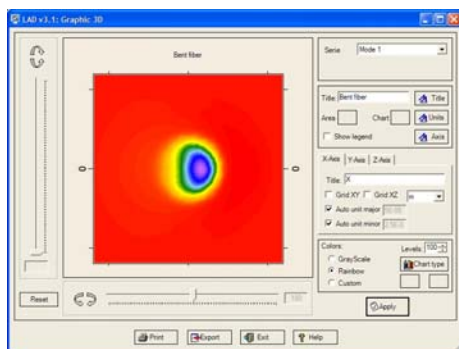
## Functionality

- CW simulation
- Transient simulation
- SBS and SRS threshold calculation
- Active fibers radial core doping
- Inversion level calculation
- Iterations - automated multiple simulations
- Monte Carlo Analysis
- RSoft's OptSim compatibility
- Distributed computing concurrent simulation on multiple computers over the local network for faster data processing
- User defined components - and interface for user defined active/passive simulation algorithms
- Multimode propagation
- User defined refractive index profile
- Bending effects

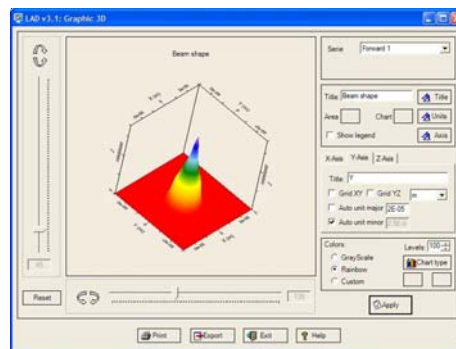
## User-friendly graphic-interface

- Graphical tools for layout design
- Various reporting tools
- Probe tool
- Customisable graphics
- Numerical data
- Export functions (ASCII, bitmap)

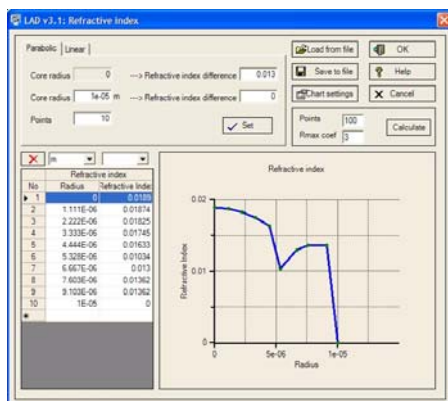
## Fundamental mode in bent fiber



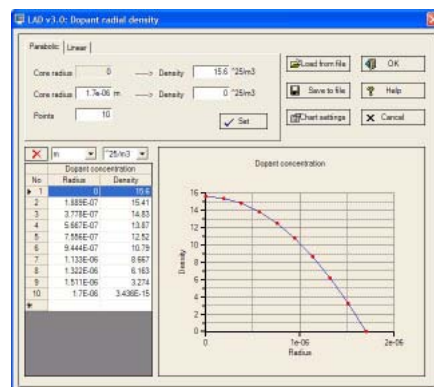
## Beam profile 3D



## Non-step refractive index profile



## Dopant distribution along doped fiber



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