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# New Light Sources Working Group

David McClelland

*The Australian National University*

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- Increasing Laser power decreases shot noise;  
(increases radiation pressure noise)
  - Advanced detectors reaching limits of power handling
  - kW class lasers need corresponding developments in optics
    - » WG should continue to pursue kW class

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- Shot noise and radiation pressure noise can also be manipulated using quantum optical techniques
  - Can be done internal to the IFO - the realm of the AIC?
  - OR can modify quantum noise injected into the IFO - quantum optical light sources
  - **PROPOSAL: add sub-quantum (squeezed) light source research to the portfolio of the lasers WG**
    - » Includes nonlinear optical materials

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- New name: Light Sources WG?
  - Interim Chair: David McClelland
  - Will attempt to find telecon times which, at least initially, allow all parts of the globe to participate
    - » Eg. 11:30pm Canberra; 6:30am; LA; 12:30 pm Germany
  - Encourage anyone interested in either laser development or quantum noise manipulation (either internal or external to the IFO) to sign up!
    - » If you are not already on the lasers WG list, please send me an email ([david.mcclelland@ligo.org](mailto:david.mcclelland@ligo.org)) to join the 'new' WG

## Most importantly....

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- This meeting is Benno Willke's final meeting as Lasers WG Chair.
- Benno has been an extremely effective and professional Chair. On behalf of the LSC I would like to congratulate Benno on the fantastic job he did. I look forward to his continuing involvement and counsel in the new WG.
- Thank you Benno!