

## **Book Review & 15 May 2016 Auckland Writers' Festival Event, "Gravitational Sensations"**

*Black Hole Blues and other Songs From Outer Space*, published just one month ago, traces the fascinating story behind the recent detection of gravitational waves predicted by Einstein in 1918. Astrophysicist Janna Levin's narrative is authoritative as it is founded on behind the scenes interviews with a range of the key LIGO (Laser Interferometer Gravitational-Wave Observatory) insiders (Rai Weiss and Kip Thorne inclusive who are now seen by some to be in the running for a future Nobel prize along with Ron Drever), visits to the facilities in Hanford and Livingston and privileged access to LIGO experimental details as she traces its 50-year history. "*Build an L. Establish a vacuum. Shine a laser. Hang some mirrors. Recombine the light. Detect the interference. Record the sounds*" is Levin's cartoon version of the story that provides insights into the trials and tribulations of doing 'big science' and confirms that it is people who make history. The "hearing" of gravitational waves by LIGO on 14 September 2015 is the latest experimental test of Einstein's General Theory of Relativity which has transformed our understanding of the universe over the 100 years of its existence. The second objective of LIGO viz. "*to open an observational window on the universe that differs fundamentally from that provided by electromagnetic or particle astronomy*" will now provide impetus to 'multi-messenger astronomy', a developing area of research working with data gathered through both light waves and gravitational waves. LIGO's detection of gravitational waves is a remarkable achievement (in Levin's words, "*The signals are infinitesimal. The sources are astronomical. The sensitivities are infinitesimal. The rewards are astronomical.*"). While Levin has engagingly detailed the human processes involved, she has kept the science clean and simple. The book is relatively short, elegantly written and is very accessible. *Nalayini Davies, 30 April 2016*

**Book:** A copy of the book is available at the Library.

**Talk:** Janna Levin will be speaking at the Auckland Writers Festival on 15 May 2016 (<http://www.writersfestival.co.nz/programmes/event/gravitational-sensations/8302/>)