

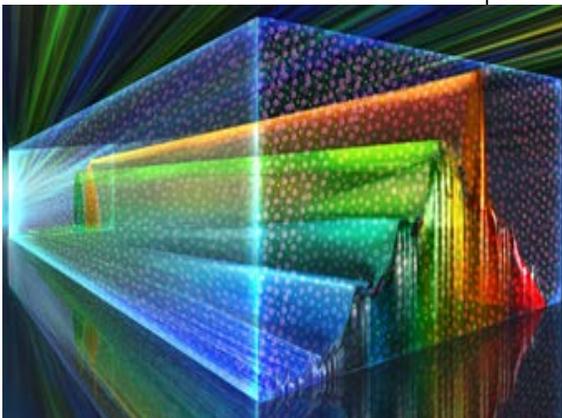
MESSAGE FROM HoP

Dear EPD Family,
July marks the month of promotions for both staff and faculty. I would like to take this opportunity to congratulate those who have been promoted in July. We will continue the spirit of striving for excellence and innovation in all that we do. To our final-year undergraduate and graduate students, we have almost come to the end of your last term here in EPD. Those of you still in the throes of jobsearch, if you need to, you may reach out to CDC, your mentor, or even our EPD staff for help. Work very hard and play even harder to collect great memories before you embark on the next chapter of your life.

UPCOMING EVENTS

2 Aug Outreach to Anderson JC	4 Aug Outreach to HCJC
11 Aug EPD Living Room Sessions	25 Aug EPD Imagineering Series: Understanding Photography

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ACHIEVEMENTS

- Congratulations to our EPD faculty, Dr. Dawn Koh, on her promotion to Senior Lecturer.
- Congratulations to our ARMS Lab staff, Ms. Chu Wenjing, on her promotion to Manager.
- EPD Sophomores Jonathan Ng and Jonathan Ang were awarded 1st prize worth \$5000 at the 2017 Designathon, organised by the Singapore Design Council for their project, Wheel-E.
- 2 EPD students – Cindy Ong and Ong Wei Tong – along with their team, participated in BIZ IT and won 2nd prize for FLEX, a smart portable device for the elderly to exercise.



FEATURED STUDY: ULTRA-HIGH GAIN CMOS OPTICAL PARAMETRIC AMPLIFICATION

Asst. Prof. Dawn Tan (PI), Dr. Kelvin Ooi, Dr. Ju Won Choi, Ms. Ezgi Sahin, Mr. George Chen

Description: Optical parametric amplification with 17,000X gain is demonstrated on a CMOS manufacturable chip. The device features an ultrahigh Kerr nonlinearity, high nonlinear figure of merit, provides a 1000X size reduction. The broadband amplification represents one of the largest gains to date on a chip.

Key Publications:

K. J. A. Ooi, D. T. H. Tan, et al. "Pushing the limits of CMOS optical parametric amplifiers with USRN: Si₃N₄ above the two-photon absorption edge," *Nature Communications* **8**, 13878 (2017). (Highlighted by Sciencedaily.com, Novus Light Technologies, Physorg.com, Photonik.de, QS Wow News etc.)

Related Works:

J. W. Choi, D. T. H. Tan, et al. "Wideband nonlinear spectral broadening in ultra-short ultra - silicon rich nitride waveguides," *Sci. Rep.* **6**, 27120 (2016).
T. Wang, D. T. H. Tan, et al. "Supercontinuum generation in bandgap engineered, back-end CMOS compatible silicon rich nitride waveguides," *Laser & Photon. Rev.*, **9**: 498 - 506 (2015).