

1. PERSONAL INFORMATION

Family name: **Park**

First name: **Tuson**

Research ID: <https://orcid.org/0000-0003-2974-8410>

Nationality: South Korea

Website: <http://cqms.skku.edu/>



2. EDUCATION

- | | |
|------|---|
| 2003 | PhD
Physics at University of Illinois at Urbana-Champaign, USA
<u>Prof. Myron B Salamon</u> |
| 1996 | M.S.
Physics at Sungkyunkwan University, Korea
<u>Prof. Y.-S. Kwon</u> |
| 1994 | B.S.
Physics at Sungkyunkwan University, Korea |

3. CURRENT AND PREVIOUS POSITIONS

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|----------------|---|
| 2012 – Present | Director , Center for Quantum Materials and Superconductivity (CQMS), Sungkyunkwan University, Korea |
| 2018 – Present | Professor , Department of Physics, Sungkyunkwan University, Korea |
| 2012 - 2018 | Associate Professor , Department of Physics, Sungkyunkwan University, Korea |
| 2008 - 2012 | Assistant Professor , Department of Physics, Sungkyunkwan University, Korea |
| 2005 - 2008 | J. Robert Oppenheimer (JRO) Postdoctoral Fellow , Los Alamos National Laboratory, USA |
| 2003 - 2005 | Postdoctoral Research Associate , Los Alamos National Laboratory, USA
Research Advisor: Dr. Joe D. Thompson |
| 1998 - 2003 | Research Assistant , University of Illinois at Urbana-Champaign, USA
Thesis Advisor: Prof. Myron B. Salamon |

4. ORGANISATION OF SCIENTIFIC MEETINGS

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|----------------|--|
| 2012 - Present | International advisory board in Strongly Correlated Electron Systems (SCES) |
| 2014 - Present | Program committee in Quantum Materials Symposium (QMS) |
| 2012 - Present | Program committee in the International Conference on Superconductivity and Magnetism |
| 2016 - 2018 | Organizer of the International Workshop on Recent Progress in Superconductivity |
| 2016 | Organizer of Quantum Materials Symposium (QMS) |
| 2011 | Organizing committee in Ultra Low Temperature (ULT) 2011, Korea |
| 2011 | Organizer of SKKU-APCTP International Symposium on Heavy Electrons and Novel Quantum Phases, Korea |

5. FELLOWSHIPS, HONORS, AWARDS

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| 2020 | Outstanding Research Award, Korean Superconductivity Society, Korea |
| 2016 | Fellow of Korean Physical Society (KPS) |
| 2016 | Samdong Outstanding Research Achievement Award, Korean Superconductivity Society, Korea |
| 2015 | Research & Development Award, Ministry of Science, ICT and Future Planning, Korea |
| 2011 | SKKU Young Fellow, Sungkyunkwan Univ., Korea |
| 2009 | POSCO Bessemer Science Fellow, POSCO TJ Park Foundation, Korea |
| 2007 | Postdoctoral Distinguished Performance Award, Los Alamos National Laboratory, USA |
| 2007 | Outstanding Young Research Award, Association of Korean Physicists in America, USA |

6. IMPORTANT SCIENTIFIC ACHIEVEMENTS

My research is centered on discovering and studying new quantum phases emerging under extreme conditions in strongly correlated electron systems. These phases, such as unconventional superconductivity, unusual weak ferromagnetism, electronic ferroelectricity, etc., are unexpected from conventional theories of phase transitions and are often incompletely described by model Hamiltonians. By subjecting strongly correlated materials to multiple extreme conditions, such as high pressure, high magnetic/electric field, and structural strain, the novel quantum phases have been explored. A variety of experimental techniques under extreme conditions have been developed to study the electrical, thermodynamic, and spectroscopic properties of the emergent quantum phases that appear near the absolute zero Kelvin ($T=0$ K).

My research has resulted in the publication of 105 papers in the refereed journals since my Ph.D. degree in 2003, which include 2 articles in *Nature*, 1 in *Nature Physics*, 3 in *Nature Communications*, 3 in *PNAS*, 14 in *PRL*, 3 in *NPG Asia Materials*, 20 in *PRB*, and 6 in *Scientific Reports*. Below are **10 representative publications in which I am the corresponding/first author in the research on quantum matters under extreme conditions** - complete publication list can be accessed through <http://cqms.skku.edu/c/publications/2020>.

- (1) Tunable quantum critical point and detached superconductivity in Al-doped CrAs, *npj Quantum Materials* **4**, 49 (2019)
- (2) A peak in the critical current for quantum critical superconductors, *Nature Communications* **9**, 434 (2018).
- (3) Manipulating superconducting phases via current-driven magnetic states in rare-earth doped CaFe_2As_2 , *NPG Asia Materials* **10**, 156 (2018).
- (4) Controlling superconductivity by tunable quantum critical points, *Nature Communications* **6**, 6433 (2015).
- (5) Disorder in quantum critical superconductors, *Nature Physics* **10**, 120 (2014).
- (6) Textured superconducting phase in the heavy fermion CeRhIn_5 , *Physical Review Letters* **108**, 077003 (2012).
- (7) Probing the nodal gap in the pressure-induced heavy fermion superconductor CeRhIn_5 , *Physical Review Letters* **101**, 177002 (2008)
- (8) Electronic duality in strongly correlated matter, *Proceedings of National Academy of Science (PNAS)* **105**, 6825 (2008).
- (9) Isotropic quantum scattering and unconventional superconductivity, *Nature* **456**, 366 (2008).
- (10) Hidden magnetism and quantum criticality in the heavy fermion superconductor CeRhIn_5 , *Nature* **440**, 65 (2006).