Prof. Gabby Sarusi Date (December 2025)

CURRICULUM VITAE

• Personal Details

Name: Prof. Gabby Sarusi
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Current Position: Full Professor, Head of Photonics and Electro-optics Dept. – School of Electrical and Computer Engineering, and Illsa Katz Nano-Sciences Center, Ben-Gurion University of the Negev, Beer Sheva, Israel.

• Education

B.Sc. 1981-1985: Ben-Gurion University of the Negev, Department of Nuclear Engineering – **Graduated Cum Laude**.
Name of advisor: Prof. Gad Shani
Title of project: Computerized Radiography of Fast Neutrons. (Best university project prize)

B.Sc. - 1981-1985: Ben-Gurion University of the Negev, Department of Material Engineering – **Graduated Cum Laude**.
Name of advisor: Prof. Joseph Baram and Dr, Igal Gefen
Title of project: Acoustic emission in Cu/Gd Alloys.

M.Sc. 1985 -1987: Tel Aviv University, Department of Electrical Engineering – Physical Electronics – **Graduated Cum Laude**.
Name of advisor: Prof. Yoram Shapira (TAU) and Dr. Ami Zemel (Soreq-NRC)
Title of thesis: Electrical and optical properties of Cu and Au doped HgCdTe epitaxial layers grown by LPE.

Ph.D. 1988 -1992: Tel Aviv University, Department of Electrical Engineering – Physical Electronics.
Name of advisor: Prof. Yoram Shapira (TAU) and Dr. David Eger (Soreq NRC)
Title of thesis: Investigation of the properties of narrow bandgap IR photodetectors based on epitaxial layers of HgCdTe

Postdoc.: 1992 – 1994: AT&T Bell Labs. (Lucent) Murray Hill N.J. USA
Name of advisor: Dr. Barry F. Levine
Working on: Quantum Wells Infrared Photodetectors (QWIP) for very long wavelength infrared.

Executive MBA 2000 – 2001: Tel-Aviv University, Recanati School of Business, Department of Business Administration

Employment History

1. October 2021- present: Full Professor, Head of Photonics and Electrooptics Dept. School of Electrical Engineering, Ben-Gurion University of the Negev
2. March 2019 to 2021: Full Professor, Head of Electrooptics Engineering Department. Ben-Gurion University of the Negev, Unit of Electro-Optics and Photonic Engineering, School of Electrical and Computers Engineering and Ilse Katz Institute for Nano-Science and Technologies.
3. March 2012 to February 2018: Associate Professor, Researcher. Ben-Gurion University of the Negev, Unit of Electro-Optics and Photonic Engineering, School of Electrical and Computers Engineering and Ilse Katz Institute for Nano-Science and Technologies.
4. January 2011 to February 2012: V.P., CTO at Elbit-Elop
5. 2006-2011: V.P., Head of Space and air Imagery intelligence division at Elbit-Elop
6. 2001-2006: V.P., Chief Scientist. Elbit- Elop
7. 1995-2001: Director R&D, Thermal Imaging Systems Development
8. 1994-1995: Research Consultant, NASA – JPL, Pasadena, CA, USA
9. 1992-1994: Post doc. at AT&T Bell Labs. Murray Hill, N.J. USA
10. 1986-1992: Student Researcher – Soreq NRC, Yavne, Israel. In parallel with my M.Sc. and Ph.D. studies at Tel-Aviv University.
11. 1985-1986: Development Engineer, Microelectronics, Holon, Israel
12. 1984-1985: Associate Student Researcher at R&D institutes of Ben-Gurion University

Professional Activities

(a)Positions in academic administration

a. 2012 to present: Co-Founder and Ben-Gurion University's representative of the Israeli Photonic Center established by Soreq NRC and Ben-Gurion University
b. October 2014 to September 2017: Member in the BGU Senate
c. 2014 to present: A BGU representative of the stirring committee of the Carasso science park, Beer-Sheva, Israel
d. 2013 to present: The Academic Head of the Jusidman Science Center for Youth at Ben-Gurion University of the Negev.
e. 2014-2017: Member of the EduNano – European commission program, BGU representative for online study of nano-scale sciences.
f. 2015: Leading the "Unesco 2015-year of light BGU activities"
g. 2013 to present: Member of the stirring committee of the Ilsa Katz nano-science center at BGU
h. 2018 - Academic head of the SPIE student chapter
i. 2017- 2018 Steering committee and lecturer in Pei'ma project BGU and IAI
j. 2019-2021: Deputy of R&D to head of electrical and computer engineering school, at Ben-Gurion University.
k. 2022-present: Head of Photonics and Electrooptics Engineering Dept., School of Electrical and computer engineering.

(b) Professional functions outside universities/institutions
1995-2001 Elbit- Elop: Director of development groups of advanced thermal imaging systems.

I supervised around 70 physicists and development- engineers. Outcome product of this generic development:

1. TADES technology (480X4 TDI MCT) for gunner thermal imaging system for the Israeli main battlefield tank – Merkava, and the main thermal imager system for Israeli UAVs.
2. Development of dual band NIR and LWIR QWIP detectors for thermal imaging and 1.06micron laser see-spot applications.
3. Un-cooled thermal imaging systems for tank drivers and as a head mounted systems for soldiers.
4. Handheld thermal imaging systems.

2001-2006 Elbit-Elop:

Vice President, company's chief scientist:

1. In charge of the technology and scientific strategy of the company.
2. Launching new electro-optics development programs (as well as two MAGNET consortia – MOEMS – Micro Optical Electrical and Mechanical system and BMP – Bio Medical Photonics.
3. Scouting for new technologies in the academia and in startup companies.
4. Leading technological M&As.
5. Establishing company's strat-ins: developing leading edge top-secret electro-optical intelligence systems.
6. Company representative on the board of directors of the daughter companies: SCD and OPGAL

2006-2011: Elbit-Elop:

Vice president, Head of Air and Space Imagery Intelligence Division:

Head of division that includes 3 business units (around 450 peoples), business of 150M$, annually:

1. Space Satellites Cameras: Space satellites camera systems – main systems development: Ofeq-7, Ofeq-9 and Ofeq-11The Israeli spy satellites cameras. Venus satellite multispectral camera – VIS-NIR-SWIR.
2. Aerial Photography: Main systems development: Airborne long range oblique photography (LOROP) and vertical photography systems for F-15, F-16, Mig-25.
3. Hyperspectral remote observation systems: Main systems development: Airborne Hyperspectral Systems in the VIS-NIR-SWIR spectral range. The system is named “Chariots of Fire" and is in now in full operation.

2004-2014 Medigus Ltd.:

Board member and head of financial committee

2012-2016 Imagine – Mobile Augmented Reality Ltd:

Co-founder of Imagine- mobile augmented reality Ltd. – a start-up company

2013-2015:

Member of the Space National R&D Committee (MOLMOP)

2014-present NanoSono Ltd and TechSee Ltd.:

Co-founder of NanoSono Ltd. and TechSee – augmented vision Ltd. – startup companies

October 2014 - September 2017 IAI Ltd.:
Board member at IAI – Israel Aircraft Industries a 4B$ company.
July 2022 - July 2025 IAI Ltd.:
Board member at IAI – Israel Aircraft Industries a 6B$ company.

(c) **Significant professional consulting**:
1994: NASA-JPL, Pasadena, CA, USA
Very long wavelength quantum well infrared photodetectors based focal plane arrays and cameras.

(d) **Editor or member of editorial board of scientific or professional journal**
Journal of Imaging Science and Technology (JIST), 2014-2015, Guest editor
Journal of Infrared Physics and Technology 2016-present, Guest editor

(e) **Ad-hoc reviewer for journals**
Applied Physics Letters (APL)
Journal of Applied Physics (JAP)
Journal of imaging science and technology (Also guest editor)
Journal of infrared physics and technology (Also guest editor)
Applied optics
Small
Lasers and Photonics Review

(f) **Membership in professional/scientific societies**
1995-2025, SPIE
2001-2010, IEEE

• Educational activities

(a) **Courses taught since March 2012 to present**:

- "Fundamental of Semiconductors and Devices" for graduate students at Ben-Gurion University of the Negev.
- "Semiconductors Optoelectronic Devices" for graduate students at Ben-Gurion University of the Negev.
- "Advanced Topics in Photonics and Electro-optics" for graduate students at Ben-Gurion University of the Negev.

Note: I have been an external lecturer at BGU between 2002 and 2007 teaching Semiconductors Optoelectronic Devices Course

(c) Research Ph.D and M.Sc. Students (with thesis) Supervision:

Graduated Students:

1. Noam Cohen, Ph.D. Graduated 2008 HUJI (Jointly with Prof. Amir Sa'ar from HUJI) – when I was working at Elop-Elbit
2. Nadav Carmel, M.Sc. Graduated September 2014, BGU
3. Elad Hechster, M,Sc. Graduated September 2014, BGU
4. Vladimir Witenberg, M.Sc. Graduated September 2015, BGU
5. Rachel Faig-Matityahu, M.Sc. Graduated September 2015, BGU
6. Viki Michael-Magen, M.Sc. Graduated September 2015, BGU
7. Nimrod Guy Nissim, M.Sc. Graduated September 2015, BGU
8. Idan Bark, M.Sc. Graduated September 2015, BGU
9. Itai Kadosh, M.Sc. Graduated September 2015, BGU

10. Matan Arbel M.Sc. Graduated September 2016, BGU
11. Amir Tal, M.Sc. Graduated 2016, BGU (Jointly with Dr. Iris Visoly-Fisher)
12. Maxim Khabad M.Sc. Graduated April 2017 (Jointly with Prof. Ytzchak Ytzchaky), BGU
13. Elad Hechster, Ph.D. Graduated December 2018, BGU
14. Israel Hory – M.Sc. Graduated November 2019, BGU
15. Arieh Grossman – M.Sc. Graduated March 2020, BGU
16. Chen Klain, - Ph.D. Graduated March 2020, BGU
17. Rudrarup Sengupta – M.Sc. Graduated September 2020, BGU
18. Hadar Manis-Levi, - Ph.D. Graduated September 2020, BGU
19. Adi Paz - M.Sc. Graduated June 2022, BGU
20. Rudrarup Sengupta – Ph.D. Graduated October 2024, BGU
21. Heena Khand – Ph.D. Graduated March 2025, BGU
22. Mohamad Daka – M.Sc. Graduated July 2025, BGU

Active Ph.D. students:

Active M.Sc. Students:

Supervised M.Sc. Student without thesis (Graduated):

23. Victor Golan M.Sc. graduated 2014
24. Zeev Friedkin M.Sc. graduated 2014
25. Ido Krabol M.Sc. graduated 2015

Active M.Sc. Student without thesis:

Supervised B.Sc. final project (Graduated)

26. Shlomit Birchfield and Natali Gantts (Bio-Technology dept.)

• Awards, Citations, Honors, Fellowships

(a) Honors, Citation Awards

1. December 2015 - Beijing Information Science and Technology University (BISTU), **Honorary Professor of BISTU**

Scientific Publications

Total: Citations: 1471 (Google scholar), **h-index**:20(Google scholar), **i-10 index**:31

(a) Authored books

None

(b) Editorship of collective volumes

1. Gabby Sarusi, Anna Carbone, Sarath Gunapala and H.C. Liu, 2002, QWIP-2002, Journal of Infrared physics and Technology - special issue, Elsevier, 545 pages.

2. *** Gabby Sarusi,** Sarath Gunapala, 2017, QSIP2016**,** Journal of Infrared physics and Technology - special issue, Elsevier, 256 pages.

(d) Refereed chapters in collective volumes and conference proceedings

1. **Gabby Sarusi[PI]**, "TADIR - a Second Generation 480x4 TDI FLIR" SPIE Vol. 3061 p.p. 673 (1997)

2. Boaz Brill and **Gabby Sarusi[PI]** "QWIP Research and Development of 320x256 QWIP Arrays in El-Op" SPIE Vol. 3061 p.p. 781 (1997)

3. Gabby Sarusi[PI], Natan Ziv, J. Gaber, M. Lerner, Mark Schechterman and Avraham Friedenberg "TADIR - High Resolution 480x4 TDI Thermal Imager" SPIE Vol. 3436, p.p. 194(1998)

4. **Gabby Sarusi[PI]** and Boaz Brill "Development of 320x320 QWIP based thermal Imager in El-Op" SPIE Vol. 3436, p.p. 240(1998)

5. Boaz Brill and Gabby Sarusi[PI] "System Evaluation of QWIP based Thermal Imager" SPIE Vol. 3436, p.p. 270(1998)

6. **Gabby Sarusi[PI]**, Natan Ziv, Ofer Zioni, Yaakov Gaber, Mark Schechterman and Menachem Lerner ""TADIR – Production Version" High Resolution 480x6 TDI Thermal Imaging System" SPIE Vol. 3698, p.p. 427(1999)

7. Noam Cohen and **Gabby Sarusi[PI]** "A monolithic two color QWIP for thermal imaging and SEE- SPOT" SPIE Proceeding 4369 (2001).

8. **Gabby Sarusi[PI]** "Choosing IR Detector for Third Gen. Infrared Systems" SPIE Vol. 4532(2002).

9. Noam Cohen and **Gabby Sarusi[PI]** "QWIP - from monochrome device towards Multispectral System", SPIE Proceeding 4820 (2002).

10. Noam Cohen and **Gabby Sarusi[PI]** "Bias Controlled NIR/LWIR Based Structure for Night Vision and See-Spot", SPIE Proceeding 5074 (2003).

11. **Gabby Sarusi[PI]**, Tzvi Tempelman, Elad Hechster, Iris Visoly-Fisher and Yuval Golan. "Architecture, development and implementation of a SWIR to visible integrated up-conversion imaging device". April 2016, DOI: 10.1117/12.2231526 Conference: SPIE Photonics Europe

(d) Editor's requested articles in magazines

Total: Citations: 1469 (Google scholar), **h-index**:20(Google scholar), **i-10 index**:31 (Google scholar)

1. S. D. Gunapala[PI], **Gabby Sarusi[PI]** and B.F. Levine[C] (1994) "Infrared detectors reach a new length" Invited paper by Physics World Vol. 7 No. 12 p.p. 35 December 1994 (Citations: 44, IF=0.342, JR=NA) as of 1997

2. Sarath D Gunapala[PI], John K Liu[T], Jin S Park[C], Mani Sundaram[C], Craig A Shott[T], Ted Hoelter[C], True-Lon Lin[C], S.T. Massie[C], Paul D Maker[T], Richard E Muller[C] and **Gabby Sarusi[PI]** (1995) "9-microns Cutoff 256 x 256 GaAs/Al (x) Ga (1-x) As Quantum; Well Infrared Photodetector Hand-Held Camera" NASA Tech 19980216754

3. **Gabby Sarusi[PI]** (2002) "Detectors move toward third generation IR-systems viability" Laser Focus world, 38, p.p. 107 September. (IF=0.257, JR=49/54, Q4)

(d) Refereed articles and refereed letters in scientific journals

Total: Citations: 1471 (Google scholar), **h-index**:20(Google scholar), **i-10 index**:31 (Google scholar),

1. **Gabby Sarusi[S],** Y. Gefen[PI] and J. Baram[PI] (1986) "Acoustic emission and microstructure of thermally cycled Gd-Cu," Philosophical Magazine A, 53,582. (2 citations; IF=2.136, 24/177, Q1)

2. **Gabby Sarusi[S],** A. Zemel[PI], D. Eger[c] and Yoram Shapira[PI] (1989) "Electrical and optical properties of Cu and Ga doped HgCdTe layers grown by LPE" J. Appl. Phys. 65,672. (7 citations; IF=3.068, JR=59/148, Q1(1989))

3. **Gabby Sarusi[S],** D. Eger[PI], A. Zemel[c], N. Mainzer[c], R. Goshen[c], and E. Weiss[c] (1990) "Degradation mechanisms of Gamma Irradiated LWIR HgCdTe photovoltaic detectors" IEEE Trans. Nucl. Science, Vol. 37,2042. (13 citations, IF=1.198, JR=10/32, Q2)

4. **Gabby Sarusi[S],** G. Cinader[c], A. Zemel[c], D. Eger[PI] and Y. Shapira[PI] (1992) "Application of CdTe Epitaxial layers for passivation of p-type HgCdTe" J. Appl. Phys. 71(10) 5070. (49 citations, IF3.411, JR=29/148, Q1(1992))

5. **Gabby Sarusi[S],** A. Zemel[C], D. Eger[PI], S. Ron[T] and Yoram Shapira[PI] (1992) "Investigation of the bulk and surface electronic properties of HgCdTe epitaxial layers using Photoelectomagnetic, Hall, and Photoconductivity Measurements" J. Appl. Phys. 72(6), 2312. (25 citations, IF=3.411, JR=29/148(2015), Q1(1992))

6. **Gabby Sarusi[S],** A. Zemel[C], Ariel Sher[C], D. Eger[PI] (1994) "Forward tunneling current in HgCdTe Photodiodes made on epitaxial layers grown by MOCVD and LPE" J. Appl. Phys. 76, 4420. (16 citations, IF=3.411, JR=29/148, Q1(1992))

7. **Gabby Sarusi[PD],** J.Y. Andersson[PI], B.F. Levine[PI], S.J. Pearton[C] S.V. Bandara[PD] and R.E. Liebenguth[C] (1994) "Optimization of Two Dimensional Grating for very long Wavelength Quantum Well Infrared Photodetectors" J. Appl. Phys. 76, 4989 (39 citations, IF=3.411, JR=29/148, Q1(1992))

8. **Gabby Sarusi[PD],** B.F. Levine[PI], S.J. Pearton[C] S.V. Bandara[PD] and R.E. Liebenguth[C] (1994) "Improved Performance of Quantum Well Infrared Photodetectors Using Random Scattering Optical Coupling" Appl. Physics Lett. 64, 960 (1994). (74 citations, IF=3.411, JR=29/148, Q1)

9. **Gabby Sarusi[PD],** B.F. Levine[PI], K.M.S.V. Bandara[PD], S. J. Pearton[C] and R.E. Liebenguth[C], (1994) "Random Scattering Optical Couples for Quantum Well

Infrared Photodetectors" NATO ASI Series Intersubband in Quantum Well. Kluwer Academic Publishers.p.p.1-12. (4 citations, IF=N/A, JR= N/A it was a refereed book of articles)

10. K.S.M.V. Banadara[PD], B.F. Levine[PI], **Gabby Sarusi[PD],** R.E, Libenguth[C] (1994) "Physics of single quantum well infrared photodetectors", NATO ASI Series - Intersubband transition in Quantum Well. Kluwer Academic Publishers. p.p.111. (1 citation, IF=NA, JR=N/A, NA it was a refereed book of articles)

11. S. D. Gunapala[PI], B.F. Levine[PI] K.M.S.V. Bandara[C], **Gabby Sarusi[PI],** D.L.Sivco[C] and A.Y.Cho[PI] (1994) "Very Long Wavelength InGaAs/GaAs Quantum Well Infrared Photodetectors" Appl. Phys. Lett. 64, 2288 (54 citations, IF=3.142, JR=28/145, Q1)

12. S. D. Gunapala[PI], K.M.S.V. Bandara[C], B.F. Levine[PI], **Gabby Sarusi[PI],** J.S. Park[C], T.L. Lin[C], W.T. Pike[T], and J.K. Liu[T] (1994) "High Performance InGaAs/InGaAs Quantum Well Infrared Photodetectors" Appl. Phys. Lett. 64, 3431 (33 citations, IF=3.142, JR=28/145(1997), Q1(1994))

13. **Gabby Sarusi[PI],** B.F. Levine[PI], S.D. Gunapala[PI] T.l. Lin[C], W.T. Pike[T], and J.K. Liu[T] (1994) "Design and performances of very long wavelength Quantum well infrared photodetectors" J. of Appl. Physics 76,6001 (1994). (52 citations, IF=2.183, JR=47/145(1997), Q1(1994))

14. B. F. Levine[PI], J.D. Wynn[C], F.P. Klements[T] and **Gabby Sarusi[PD]** (1995) "1Gb/s Si high quantum efficiency monolithically integrable 0.88μm detector" Appl. Phys. Lett. 66(22), 2984 (27 citations, IF=3.142, JR=28/145, Q1)

15. S. D. Gunapala[PI], J.S. Park[C], **Gabby Sarusi[PI],** T.L. Lin[C] J.K. Liu[T], P.D. Marker[T], R.E. Muller[C], C.A. Shott[T] and T. Holter[C] (1997) "15 micron 128x128 GaAs/AIGaAs Quantum Well Infrared Photodetector Focal Plane Array Camera" IEEE Trans. Elect. Devices 44, 45 (92 citations; IF=1.200, JR=22/193, Q1)

16. S. D. Gnapala, J.K. Liu, J.S. Park[C], M. Sundaram[C], C.A. Shott[T] and T. Holter[C], T.L. Lin[C] S.T. Massie[C] P.D. Marker[T] and **Gabby Sarusi[PI]** (1997) "9 microns cutoff 256x256 GaAs/AIGaAs Quantum Well Infrared Photodetector Hand-Held Camera" IEEE Trans. Elect. Devices 44,52. (148 citations, IF=1.200, JR=22/193, Q1)

17. Boaz Brill[C] and **Gabby Sarusi[PI]** (1998) "System Consideration in the Design of QWIP Based Thermal Imager" Intersubband Transitions in Quantum Wells: Physics and Devices p.p. 199-206, Kluwer Academy Publishers (5 citations, IF=N/A, JR=N/A, N/A it is a refereed book of articles)

18. N. Cohen[S], A. Zussman[C] and **Gabby Sarusi[PI]** (2001) "A monolithic LWIR/NIR multispectral QWIP for night vision and see spot" Infrared Physics and Technology 42,391-396. (13 citations, IF=0.936, JR=34/71, Q2)

19. **Gabby Sarusi[PI]**, (2003)"QWIP or other alternative for third generation infrared systems," Infrared Physics and Technology, 44, 439-444. (31 citations; IF=1.311, JR=24/76, Q2)

20. N. Cohen[S], G. Mizrahi[C], **Gabby Sarusi[PI]** and A. Sa'ar[PI] (2005) "Integrated HBT/QWIP Structure for dual color imaging", Infrared Physics and technology 47, 43-52. (10 citations; IF=1.051, JR=26/55, Q2)

21. Noam Cohen[S], **Gabby Sarusi[PI]** and Amir Saar[PI] (2007) "LWIR/SWIR switchable two color device based on InP/InGaAs integrated HBT/QWIP", Infrared Physics and Technology 50, 253-259. (5 citations; IF=0.962, JR=27/64, Q2)

22. *Tsofnat Safrani[S], Arun Kumar[PD], Matvey Kalbanov[S], Neta Arad-Vosk[S], Rotem Beach[S], Amir Sa'ar[PI], Ibrahim Abdulhalim[PI], **Gabby Sarusi[PI]** and Yuval Golan[PI] (2014) "Chemically Deposited PbS Thin Film Photo-Absorbing Layers for Optically Addressed Spatial Light Modulators" J. Mater. Chem. C**,** ,**2**, 9132-9140 DOI:10.1039/C4TC01571A. (13 citations; IF=5.066, JR=6/62, Q1).

23. *Elad Hechster[S], and **Gabby Sarusi[PI]**. (2015)"Design and measurements of the absorption section of an up-conversion device based on PbSe quantum-dots. Optical Materials 50, 188-192. http://dx.doi.org/10.1016/j.optmat.2015.10.020. (1 citation; IF=2.183, JR=91/271, Q2).

24. *Mattan Arbel[S], Elad Hechster[S] and **Gabby Sarusi[PI]** (2016) "Electrical conduction mechanisms in PbSe and PbS nano crystals 3D matrix layer". AIP Advances 6(2):025314, DOI: 10.1063/1.4942425 (1 citation, IF=1.568, JR=83/148, Q3).

25. *Asi Solodar[S], T. Arun Kumar[PD], **Gabby Sarusi[PI]**, and Ibrahim Abdulhalim[PI] (2016) "Infrared to Visible Image up-conversion using Optically Addressed Spatial Light Modulator utilizing Liquid Crystal and InGaAs Photodiodes" Applied Physics Letters 01/2016;108(2): DOI: 10.1063/1.4939903 (2 citations, IF=3.411, JR=29/148,Q1)

26. *Elad Hechster[S], Arthur Shapiro[S], Efrat Lifshitz[PI] and **Gabby Sarusi[PI]** (2016) "Optical and electrical characterizations of a single step ion beam milling mesa devices of chloride passivated PbS colloidal quantum dots based film"., AIP Advances **6**, 075117; http://dx.doi.org/10.1063/1.4960013 (3 citation, IF=1.568, JR=83/148,Q3).

27. *Tzvi Tempelman[S], Michael Shandalov[C], Vladimir Ezersky[S], Eyal Yahel[S], **Gabby Sarusi[PI]** and Yuval Golan[PI], (2016) "Enhanced SWIR Absorption in Chemical Bath Deposited PbS Thin Films Alloyed with Thorium and Oxygen". RSC Adv.6(91), 88077-88084 DOI**:** 10.1039/C6RA21188G (5 citations; IF=3.289, JR=43/163, Q1).

28. *Nimrod Nissim[S], Michael Rosenblit[C], and **Gabby Sarusi[PI]** (2017)"Feasibility study of SWIR light absorption enhancement in PbS and PbSe nanostructure layers using surface plasmon polariton" AIP Advances 7, 035001; DOI: 10.1063/1.4977744 (1 citation, IF=1.568, JR=83/148, Q3).

29. *Vladimir Wittenberg[S], Michael Rosenblit[C] and **Gabby Sarusi[PI]**, (2017) Surface Plasmon Enhanced SWIR Absorption at the Ultra n-Doped substrate/PbSe Nanostructure Layer Interface, Infrared Physics and Technology, Volume 84, August 2017, Pages 43-49, dx.doi.org/10.1016/j. infrared 02.011 (1 citation; IF=1.713, JR=72/148, Q2)

30. *Tzvi Templeman[S], Michael Shandalov[C], Michael Schmidt[C], Amir Tal[S], **Gabby Sarusi[PI]**, Eyal Yahel[C], Itzhak Kelson[C] and Yuval Golan[PI] (2017) " A New Approach

for the Incorporation of Dilute Self-Irradiating Defects in Thin Films" Scientific Report- Nature Group**,** 7: *2780* | DOI:10.1038/s41598-017-03150-9 (3 citations; IF=4.259, JR=10/64, Q1).

31. *Elad Hechster[S] and **Gabby Sarusi[PI]** (2017) "Prediction of the PbS quantum dots dielectric function by adjusting its bulk parameter in Lorentz oscillator model" Journal of Applied Physics 122, 024302 DOI:10.1063/1.4993123 (0 citations, IF=2.068, JR=59/148, Q2).

32. *Itai Kadosh[S], **Gabby Sarusi[PI]**, "Optimization of a miniature short-wavelength infrared objective optics of a short-wavelength infrared to visible upconversion layer attached to a mobile-devices visible camera," *Opt. Eng.* 56(10), 105102 (2017), doi: 10.1117/1.OE.56.10.105102. (1 citations, IF=1.082, JR=68/92, Q3)

33. *Tzvi Templeman[S], Sucheta Sengupta[P], Nitzan Maman[P], Eyal Bar-Or[C], Michael Shandalov[C], Vladimir Ezersky[S], Eyal Yahel[S], **Gabby Sarusi[PI]**, Iris Visoly-Fisher[PI] and Yuval Golan[PI], "Oriented Attachment: a Path to Columnar Morphology in Chemical Bath Deposited PbSe Thin Films" ACS - Crystal Growth & Design *18* (2), pp 1227–1235, **DOI:** 10.1021/acs.cgd.7b01771 January2018 (2 citation, IF=4.51, JR=42/166, Q1)

34. *N. Arad-Vosk[S], R. Beach[S], A. Ron[S], T. Templeman[S], Y. Golan[PI], **G. Sarusi[PI]** and A. Sa'ar[PI] "Infrared photoconductivity and photovoltaic response from nanoscale domains of PbS alloyed with thorium and oxygen" Nanotechnology Vol. 29 No 18, https://doi.org/10.1088/1361-6528/aaa85b February 2018 (3 Citation IF=3. 44,JR=28/148 Q1)

35. * Nitzan Maman[P], Tzvi Templeman[S], Hadar Manis-Levi[S], Vladimir Ezersky[S], **Gabby Sarusi[PI]**, Yuval Golan[PI] and Iris Visoly-Fisher[PI] "Post growth control of the interfacial oxide thickness in semiconductor-insulator-semiconductor junctions" Advanced Materials Interfaces 2018 5 1800231, https://doi.org/10.1002/admi.201800231 (2 Citation IF=4.279,JR=48/275, Q1)

36. * Hadar Manis-Levi, Tzvi Tempelman, Nitzan Maman, Rafi Shikler, Iris Visoly Fisher Yuval Golan and Gabby Sarsui "Electrical and optical characterization of extended SWIR detectors based on thin films of nano-columnar PbSe" Infrared Physics and Technology https://doi.org/10.1016/j.infrared.2018.09.029 (2 Citation IF=2.379, JR=66/154, Q2)

37. * Chen Klein[S], Doron Cohen-Elias[C] and **Gabby Sarusi[PI]** "As and P doping of single layer graphene using MOCVD reactor" Heliyon, 4,12, Dec. 2018 https://doi.org/10.1016/j.heliyon.2018.e01030 (IF=0.8, 28/76, Q1)

38. * Assi Solodar[S], Hadar Manis Levi[S], **Gabby Sarusi[PI]** and Ibrahim Abdulhalim[PI] "A Highly Sensitive Liquid Crystal Optically Addressed Spatial Light Modulator for Infrared to Visible Image Up-Conversion" Optics letters44,5,1269 (March 2019) https://doi.org/10.1364/OL.44.001269 (IF=3.25, Q1)

39. * Elad Hechster[S], Daniel Amgar[S], Neta Arad-Vosk[S], Tal Binyamin[S], Amir Sa'ar[PI], Lioz Etgar[PI] and **Gabby Sarusi[PI]** "Electrical and optical characterization of PbS/TiO_2 quantum

dots based heterojunctions for SWIR light detection and its feasibility for PbS/TiO_2-PeLED based up-conversion device" 2019 *Mater. Res. Express* https://doi.org/10.1088/2053-1591/ab0fb5 (IF=1.2)

40. * Fengyu Zhang[S], Chen Klein[S], Elena Longhi[S], Stephen Barlow[S], Marder Seth[PI]; **Sarusi, Gabby[PI],** Antoine Kahn[PI], "Mulecular reductant-induced control of a graphene-organic interface for electron injection" *Chem. Mater.* 2019, 31, 17, 6624–6632 March 14, 2019 http://dx.doi.org/10.1021/acs.chemmater.9b00566http://dx.doi.org/10.1021/acs.chemmater.9b00566 (IF=9.89,Q1)

41. * Maxim Khabad[S], Mordehai Bar-Tal[C], Yitzhak Yitzhaky[PI] and **Gabby Sarusi[PI]**" High Precision Point of Gaze Estimation Using an Add On Fixture to Mobile Devices Based on Corneal and Retinal Retro-Reflections" International Journal of Application and Innovation in Engineering & Management" (ISSN 2319-4847) Volume 8, Issue 4, April 2019 http://www.ijaiem.org/Volume8Issue4/IJAIEM-2019-04-23-15.pdf (IF=9.315,Q1)

42. * Chen Klain, Sivan Linden, Rafi Shikler and **Gabby Sarusi** "Low work function Ca doped graphene as a transparent cathode for organic opto-electronics and OLEDs" CARBON, Vol. 157 February 2020, Pages 255-261. (IF= Q1) https://doi.org/10.1016/j.carbon.2019.10.028

43. * Hadar Manis-Levy, Ran Eitan Abutbul, Arieh Grosman, Hadar Peled, Yuval Golan, Nurit Ashkenasy, Amir Sa'Ar, Rafi Shikler and **Gabby Sarusi** "The role of CdS doping in improving SWIR photovoltaic and photoconductive responses in solution grown CdS/PbS heterojunctions" Nanotechnology Vol. 31 (25) April 2020 (IF= 3.551 Q2 40/154) https://doi.org/10.1088/1361-6528/ab7ef7

44. * Hadar Manis-Levy, Rafi Shikler, Yuval Golan and **Gabby Sarusi**, "High photoconductive gain in a GaAs/PbS heterojunction based SWIR detector" Applied Physics Letters https://doi.org/10.1063/5.0018219 (IF=3.597, Q1 37/154)

45. * Mustafa K. A. Mohammed, **Gabby Sarusi**, P. Sakthivel, G. Ravi, Umer Younis "Improved stability of ambient air-processed methylammonium lead iodide using carbon nanotubes for perovskite solar cells" Materials Research Bulletin 137 111182 https://doi.org/10.1016/j.materresbull.2020.111182 (May 2021) (IF=4.641, Q1,)

46. * Arieh Grosman, Hadar Manis-Levy and **Gabby Sarusi** "The role of traps in dark current and photocurrent of chemical bath deposition grown nano-domains PbS/GaAs heterojunction layers" Journal of Applied Physics **129**, 214504 (2021); https://doi.org/10.1063/5.0047477

47. * Ran Abutbul, Hadar Manis-Levy, Meirav Piness-Sommer, Tzvi Templeman, Nitzan Maman, Iris Visoly-Fisher, **Gabby Sarusi** and Yuval Golan "On the chemical inertness" of Teflon in chemical synthesis" Journal of Industrial & Engineering Chemistry Research. 2021, 60, 32, 11995–12000 August 2021 https://doi.org/10.1021/acs.iecr.1c01452

48. * Naomi Kramer, Chen Klein, Inbar Emanuel, **Gabby Sarusi**, Nurit Ashkenasy "Modular modification of the two-dimensional electronic properties of graphene by bio-inspired functionalization" Applied Surface Science 574 (2022) 151642.

https://doi.org/10.1016/j.apsusc.2021.151642

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53. Rudrarup Sengupta, Heena Khand, and Gabby Sarusi; "THz Metamaterial Sensitivity Enhancement by Reduction of Substrate's Fabry-Pérot Oscillations Using Back-Plates as an Optical De-Coupler" 10.1021/acsami.4c06187 ACS Applied Materials & Interfaces (August 2024). https://doi.org/10.1021/acsami.4c06187?urlappend=%3Fref%3DPDF&jav=VoR&rel=cite-as

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56. Heena Khand, Rudrarup Sengupta, and Gabby Sarusi; "Double-Sided Metamaterial for Sensitivity Enhancement in THz Impedance Spectroscopy"; Laser and Photonics Reviews 2025, 2500023. https://doi10.1002/lpor.202500023.

57. Rudrarup Sengupta, Heena Khand, and Gabby Sarusi; "Electromagnetically Coupled Resonant Face-to-Face Double-Layer Metamaterial for Highly Sensitive THz Impedance Spectroscopy" Advanced Science (August 2025). https://doi.org/10.1002/advs.202504331

58. Heena Khand, Rudrarup Sengupta and Gabby Sarusi; "Accurate Nondestructive Determination of Interfacial Oxide layer Thickness on Si Wafers Using THz Inductive-Capacitive Resonant Metamaterial Spectroscopy" ASC Appl. Nano Material (September 2025). https://doi.org/10.1021/acsanm.5c03806

(d) Published scientific reports and technical papers-internally refereed publications
I Have many during my 17 years of work at Elop - Elbit systems, all classified.

(f) Un-refereed professional articles and publications

(g) Classified articles and reports
I have many more during my work at Elop/Elbit Systems between 1995 and 2011.

- **Lectures and Presentations at Meetings and Invited Seminars (Partial)**

(a) Invited, plenary and lectures at conferences/meetings

1. The 53rd Annual meeting. The Israeli Chemical Society 1988. Ben-Gurion University, Beer-Sheva, Israel

2. The Israeli Vacuum Society. Tenth Israeli Vacuum Congress 1990. The Hebrew University, Jerusalem, Israel.

3. The 1991 Annual Conference of the Israeli Association for Crystal and Thin Film Growth, Weizmann Institute of Science, Rehovot, Israel.

4. SPIE - The International Society for Optical Engineering, 9-13 July 1995, San Diego, California.

5. The third International conference on "Intersubband transition in semiconductors" Kibbutz Ginosar October 1995. (**Invited talk**)

6. SPIE - The International Society for Optical Engineering, 20 -25 April 1997, Orlando, Florida (**Two invited talks and a Session Chair**)

7. The Fourth International conference on "Intersubband transition in semiconductors" Tainan, Taiwan 1997. (**Invited talk+panel session**)

8. SPIE - The International Society for Optical Engineering, 20-25 July 1998, San-Diego, California (**Two invited talks and a Session Chair**)

9. SPIE - Photonic CHINA 16-19 September 1998, Beijing International Conference Center.

10. SPIE – Deheradun INDIA 16-19 December 1998, Deheradun IRDE Conference Center, **Invited talk**.

11. SPIE - The International Society for Optical Engineering, April 1999, Orlando, Florida (A presentations and a **Session Chair**).

12. SPIE - The International Society for Optical Engineering, July 2000, San-Diego, CA (A presentations and a **Session Chair**).

13. SPIE - The International Society for Optical Engineering, July 2002, Seattle, WA (A presentations and a **Session Chair**)

14. QWIP 2002 Workshop, Torino Italy October 2002, **Conference Chair and invited talk**

16. SPIE - The International Society for Optical Engineering, April 2003, Orlando, FL (Presentations and a **Session Chair**)

17. SPIE - The International Society for Optical Engineering, April 2004, Orlando, FL (Presentations and a **Session Chair**)

18. SPIE - The International Society for Optical Engineering, April 2005, Orlando, FL (Presentations and a **Session Chair**)

19. Electro-optic workshop IRDE Deheradun, India. December 2005 **Keynote speaker**

20. SPIE - The International Society for Optical Engineering, April 2006, Orlando, FL (Presentations and a **Session Chair**)

21. Yuval Nee'man conference in Tel Aviv University, 2009 Tel Aviv **Invited talk**

22. Oasis 2010, Tel Aviv Israel, Organizing Committee and **Invited talk**

23 QSIP 2012, Corsica, France, Organizing and Technical Program Committee

24. Oasis 2014, Tel Aviv Israel, Organizing Committee and **Invited talk**

25. QSIP 2014, Santa Fe, NM, USA, Technical Program Committee and a talk

26 Nano Science and nanotechnology, Xia'n, China September 2015 **Session Chair** and an **Invited talk**

27 Imagine-nano Bilbao Spain 2015 **Invited talk**

27. SPIE Photonics Europe, Brussel 2016 **Invited talk**

28. QSIP 2016, June 2016 Tel-Aviv, Israel. **Conference Chair and Invited talk**

29. Nano Science and nanotechnology, Singapore October 2016 **Session Chair** and an **invited talk**

30. Single wall carbon Nano-tube conference, OCSiAl, Novosibirsk, Russia. November 2016, **Invited talk**

31. Nano Science and Nano Technology, Fukuoka, Japan October 2017, **Invited talk and Nano-photonic session co-chair**

32. Smart future nano-materials summit, The Economist conference, Luxemburg, November 13-14 2017, **Augmented material panel session.**

33. Nano-Augmented Material Conference, University of Luxemburg November 15-16, 2017, **Invited talk**

34. SPIE, San Diego, 2017

34. Israel machine vision conference - IMVC2018, Tel-Aviv, **Keynote invited speaker**, 6 of March 2018

35. NanoIL Jerusalem, **Chair and Speaker**, October 9-11 2018

36. OASIS-7 Tel Aviv, **Invited speaker**, April 1-2 2019

37. SPIE Beijing, **Invited speaker,** April 2023

(b) Seminar presentations at universities and institutions (Since 2013 only)

1. Soreq NRC, Israel - March 2013
2. CNRC-Paris, France – March 2014
3. December 2015 - Beijing Information Science and Technology University (BISTU), "SWIR to visible image upconversion device" – physics and architecture
4. NTU – National University of Singapore – March 2016
5. OCSiAl Augmented Nano Material Seminar– Novosibirsk, Russia November 2016

Patents:

1. 1996, Barry F. Levine and **Gabby Sarusi**, "Quantum well photo-detector with pseudo-random reflection". **US Patent 5,506,419 USA - Granted**

2. 2011, Noel Axelrod, Amir Lichtenstein and **Gabby Sarusi**, Multimodal Depth resolving endoscope" Application number: **20110282192**

3. 2013, Daniel Grinberg, **Gabby Sarusi**, Eli Luria, System worn by moving user for fully augmented reality by anchoring virtual objects. **US Patent 2013/ 0307842 A1, USA and Europe - Granted**

4. 2014, **Gabby Sarusi**, Yuval Golan "SWIR to visible image upconversion integrated device" **Granted 32518/US, EU and Canada – Granted**

5. 2014, **Gabby Sarusi**, Ibrahim Abdulhalim "SWIR to visible upconversion optical system" **PCT 32594/US/14 (National Phase)**

6. 2015, Arie Kalo, **Gabby Sarusi**, Shachar Kalo, Nir Gilboa "composition and method for three-dimensional (3D) printing" **PCT/IL2015/050148 – Granted**

7. 2021, **Gabby Sarusi**, Rudrarup Sengupta "Prompt viruses' infection detection using THz spectroscopy in a breathalyzer-like configuration" **WO2021036A1 – PCT Pending**

• Research Grants:

Seven years in a row exemption of teaching one course a year as a benefit for high score in achieving grants budget and research fulfilments.

Before my arrival to Ben-Gurion University:

1. **1997-1999: Grant from the ministry of science and technology (MOST) to develop Laser see spot QWIP based IR detector. 1.2M Shekels for 3 years.**

2. **2002-2005: Founder and chairman of the MOEMS (Micro-optical-electrical-mechanical systems) – MAGNET consortium where I have established the consortium when I was the chief scientist of Elbit/Elop. Budget of 50M Skekels for 4 years.**

3. **2005-2009: Founder of the BMP (Bio-medical Photonics) MAGNET consortium, when I was the chief-scientist of Elbit/Elop. Budget of 50M Shekels for 5 years. I transfer the chairmanship to Dr. Elisha Rabinowitz from Given-Imaging due to my new position at Elbit/Elop as the V.P. of Space and Air Intelligence Division in 2006**

Since my arrival to Ben-Gurion University:

4. **October 2012 to March 2017: Sum gross budget of 7.5M$ for 4.5 years. First research grant as a faculty at BGU.**
   Funded by INNI - Israel National Nanotechnology Initiative under FTA- Focal Technology Areas of the nano-technology centers.
   Research Topic: "SWIR to visible integrated image upconversion device using nano-photonic and nano-plasmonic"
   I came with the research idea, plan chose the PIs and led the proposal submission, and organized the research groups from BGU and other universities. Presenting to the INNI committee and running as the program leader in front of the other PIs.
   BGU PIs: Gabby Sarusi (Program leader), Yuval Golan, Ibrahim Abdulhalim, Gabriel Lemkof, Rafi Shikler, Iris Visoly-Fisher, Eugen Frumker, Yonatan Sivan, Ilan Shalish.
   HUJI PIs: Amir Sa'ar and Uriel Levi
   Technion PI: Efrat Lifshitz
   TAU PI: Gil Markowitz
   Weismann: Michael Bendikov (Late) who was replaced by Ronny Neumann

5. **June 2013 to June 2018: Sum gross budget of 1000K Shekels for 5 years.**
   Funding by Mafa't-Tashtiot IMOD
   Research topic: Development of the optical system to be integrated with the SWIR to visible up-conversion device.
   PI: Gabby Sarusi

6. **2014 Infrastructure Grant: 175M Shekel budget for 4 years of BGU and Soreq NRC to establish the Israeli "Photonic Center"**

7. **December 2015 to November 2016: Sum gross budget of 440K Shekels for 1 year.**
   Funding by Kamin, the Chief Scientist Office.
   Research topic: "Infrared energy harvesting from hot exhaust using Schottky based PbSe and PbS nano-structure photovoltaic cells"
   PIs: Gabby Sarusi and Yuval Golan

8. **December 2016 to December 2020: Sum gross budget of 1.04M$ for 4 years.**
   Funding by Ram-Group Germany (annual budget of 260K$)
   Research topic: "Ultra-Sensitive Double Ring Resonator Based Optical Bio/Chemical Sensors"
   PI: Gabby Sarusi

9. **June 2018 to December 2020: Sum gross budget of Part of the above 1.04M$ for 4 years. Funding by Ram-Group Germany (annual budget of 260K$)**
   Research topic: " High Sensitivity room temperature Terahertz sensors based on nano-antenna coupled with GaN/AlGaN HEMT "
   PI: Gabby Sarusi
10. **July 2019-June 2021: Buried waveguides in Silicon substrates. 700K Shekels for 2 years, Kamin Program, Innovation authority.**
    PI: Gabby Sarusi

Academic Research Activities

1. Sensitivity enhancement in THz impedance spectroscopy
2. THz Impedance Spectroscopy
3. SWIR to Visible Upconversion device - FTA program
4. Combining the Upconversion device to Augmented Reality Glasses - Mafa't
5. Infrared energy harvesting - Kamin program
6. Pupil-eye tracker program – Internal program
7. High Energy miniature Yb/YAG and Yb/YLF(Ytterbium-Lithium-Fluoride) lasers
8. Ultra-Sensitive Double Ring Resonator Based Optical Bio/Chemical Sensors - Ram-Group's program, Funded by a Singaporean/ German company.
9. High Sensitivity room temperature Terahertz sensors based on nano-antenna coupled with GaN/AlGaN HEMT funded by Ram-Group's program (Funded by a Singaporean/ German company).
10. 3D Buried waveguides network writing in Silicon using Femto-second laser

Papers accepted, submitted and are under review:

Papers accepted for publication:

59. Rudrarup Sengupta, and Gabby Sarusi; “Highly Sensitive Room-Temperature Graphene-Modulated AlGaN/GaN HEMT THz Detector Architecture” Submitted and accepted to Sensors

Papers submitted and under review:

Papers in preparation”

61. Rudrarup Sengupta, Heena Khand and Gabby Sarusi, a review paper on ‘Sensitivity enhancement in THz Impedance Spectroscopy”

- **Synopsis of research, including reference to publications and grants in above lists**

1. FTA and Mafa'at programs:
   I intent to finalize these two programs by July 2017 where for the FTA program we have already demonstrated an up-conversion from SWIR to visible of images and videos based on InGaAs absorbing layer and LC-OSLM visible emitting layer. Now we are finalizing the proof of concept to do it in the combination of nano-spheres or nano-columns absorption layer made of PbSe or PbS, respectively and an emission

layer of OLED. The main obstacle today is to get the critical photocurrent out of these nano-structures that will be able to achieve the threshold current need to lit the OLED. At the moment we are about one order of magnitude lower. This is due to defects in the nanostructure that serve as recombination centers to the photo-excited carriers. In addition, we still have energy barriers at the interfaces that block the charge carriers and induce more resistivity to the layer structures. In parallel, we have designed the optical layout of the system and produced nearly all the millimeter size lenses. We have also design and are currently producing the mechanical housing of the optics as part of the Mafa'at program. This optics will be attached to an augmented reality glasses that the visible camera imbedded in these glasses will receive the converted visible image and project it on the see through lenses. This is the goal of the program and if we will be able to demonstrate it the overall program will be recognized as a total success. Even if we will not be able to fulfill the entire tasks, still we have achieved many milestones and published tens of papers and we have tens of graduate students for M.Sc. and Ph.D. On this program I have several students in my group and some other students in other PIs groups. Most of the M.Sc. graduate students in my group up to date work on this program and some of them continue to Ph.D. (Elad Hechster and Matan Arbel). I currently have Elad Hechster, Hadar Manis-Levi and Chen Klein working on this topic. The last Ph.D. student Chen is working on achieving a task of transparent cathode made of Graphene and Single wall carbon nanotube.

2. **Infrared energy harvesting by photovoltaic cells made of nanostructured semiconductor and metal junction**

   A derivative of this program is the KAMIN program, where we intent to make both heterojunction between the substrate (GaAs or Si) and the nano-structure of a Schottky junction between the nano-structure layer and the covering metal contact. These rectifying junctions will provide a photovoltaic effect to produce electrical current from the absorbed infrared photons. The idea is the take advantage of the heat dissipation from Hybrid cars exhaust pipe to absorb this heat as infrared photons in these infrared photovoltaic cells and the produce current that will charge the Hybrid car batteries. Based on the simulation this can increase car fuel efficiency by 4-5%.

3. **Yb:YLiF high energy microchip laser**

   A nice program that is been carried out in my group is related to semi-stable cavity of micro-chip laser. My Ph.D. student Nissim Cohen is developing and investigating an high pulse energy Yb:YLiF microchip laser. The unstable nature of such cavity leads to high energy pulses. The research involves understanding and optimization of the lasing process within this short cavity in order to maximize the output energy per pulse and at the same time prevent any thermal damage to the laser crystal

4. **Eyes pupil tracker**

   This engineering program is carried out by my M.Sc. student Maxim Khabad. The main idea is that when illuminating the eye with near infrared LED we can get two reflections, one from the cornea and the second from the eye lens. The distance between them is about 5mm. By recording these two reflections on two CMOS cameras that are positioned in a known parallax distance, we can see a gap open and close between the two reflections. This gap is directly related to the pupil viewing angle (using the correct geometrical model it can be directly calculated when knowing the other parameters such as viewing distance and the distance between the

two cameras. We have built a lab system that demonstrate the idea and are currently working on the calculation algorithm.

5. **Ultra-high sensitivity optical biosensors based on optical double ring resonator**
   A new program that we are about to get this month is related to ultra-sensitive optical bio sensors, the funding is from a Singaporean/German company called Ram-group that I have good contacts with the founder and the CEO. We are developing several concepts that will include optical ring resonators couple with surfaces that we can induce plasmonic enhancement of the absorption. The idea is to exceed a sensitivity of nano-molar in concentration to detect several known antigens. The ultimate goal from the company's point of view is to have a small kit that can be carried by any person for home use that will be able to accurately predict initial cells of cancer and other disease within the blood. The program is for 4 years and I have already recruited two research assistants and one M.Sc. student that started to work.

6. **Terahertz radiation sensor**
   This is a new project funded by Ram Group from Germany aiming to developed a high sensitive sensor for Terahertz radiation. The concept will be based on two approaches: a. A gate engineering of GaN/AlGaN HEMT using micro-antenna structures b. Floating gate of high polarized material that can induce local electric field on the S-D channel.

7. **3D buried waveguides writing in Silicon using focused and free of aberration Femto-Second laser beam at 1550nm.**
   Research is carried out with Dr. Alexander Gusarov using KAMIN Innovation authority

8. **Sensitivity Enhancement of THz metamaterial used for Impedance Spectroscopy**
   Deep understanding of the