

Truth in Testimony Disclosure Form

In accordance with Rule XI, clause 2(g)(5)* of the *Rules of the House of Representatives*, witnesses are asked to disclose the following information. Please complete this form electronically by filling in the provided blanks.

Committee: House Committee on Science, Space, and Technology

Subcommittee: N/A

Hearing Date: 12/02/2021

Hearing Title :

Ensuring American Leadership in Microelectronics

Witness Name: Mung Chiang

Position/Title: Executive Vice President, Purdue University

Witness Type: Governmental Non-governmental

Are you representing yourself or an organization? Self Organization

If you are representing an organization, please list what entity or entities you are representing:

Purdue University

FOR WITNESSES APPEARING IN A NON-GOVERNMENTAL CAPACITY

Please complete the following fields. If necessary, attach additional sheet(s) to provide more information.

Are you a fiduciary—including, but not limited to, a director, officer, advisor, or resident agent—of any organization or entity that has an interest in the subject matter of the hearing? If so, please list the name of the organization(s) or entities.

No.

Please list any federal grants or contracts (including subgrants or subcontracts) related to the hearing’s subject matter that you, the organization(s) you represent, or entities for which you serve as a fiduciary have received in the past thirty-six months from the date of the hearing. Include the source and amount of each grant or contract.

Please see attached list of relevant grants.

Please list any contracts, grants, or payments originating with a foreign government and related to the hearing’s subject that you, the organization(s) you represent, or entities for which you serve as a fiduciary have received in the past thirty-six months from the date of the hearing. Include the amount and country of origin of each contract or payment.

Please see attached list of relevant grants.

Please complete the following fields. If necessary, attach additional sheet(s) to provide more information.

- I have attached a written statement of proposed testimony.
- I have attached my curriculum vitae or biography.

*Rule XI, clause 2(g)(5), of the U.S. House of Representatives provides:

(5)(A) Each committee shall, to the greatest extent practicable, require witnesses who appear before it to submit in advance written statements of proposed testimony and to limit their initial presentations to the committee to brief summaries thereof.

(B) In the case of a witness appearing in a non-governmental capacity, a written statement of proposed testimony shall include— (i) a curriculum vitae; (ii) a disclosure of any Federal grants or contracts, or contracts, grants, or payments originating with a foreign government, received during the past 36 months by the witness or by an entity represented by the witness and related to the subject matter of the hearing; and (iii) a disclosure of whether the witness is a fiduciary (including, but not limited to, a director, officer, advisor, or resident agent) of any organization or entity that has an interest in the subject matter of the hearing.

(C) The disclosure referred to in subdivision (B)(iii) shall include— (i) the amount and source of each Federal grant (or subgrant thereof) or contract (or subcontract thereof) related to the subject matter of the hearing; and (ii) the amount and country of origin of any payment or contract related to the subject matter of the hearing originating with a foreign government.

(D) Such statements, with appropriate redactions to protect the privacy or security of the witness, shall be made publicly available in electronic form 24 hours before the witness appears to the extent practicable, but not later than one day after the witness appears.

False Statements Certification

Knowingly providing material false information to this committee/subcommittee, or knowingly concealing material information from this committee/subcommittee, is a crime (18 U.S.C. § 1001). This form will be made part of the hearing record.



Witness signature

11/30/21

Date

Purdue Federal Grants Related to Microelectronics - US and Foreign, Since July 2018

	Grant Type	Country	Grant Create Date	Grant Title	Grant Value Awarded to Date
1	Fed - Natl. Science Foundation	US	7/3/2018	Network for Computational Nanotechnology - Cyber Platform	29,092,392
2	Fed - Natl. Science Foundation	US	7/3/2018	From Atomic Scale Strain Probing to Smart 3D Interface Design	722,267
3	Fed - Natl. Science Foundation	US	7/3/2018	SaTC: CORE: Small: Collaborative: EM and Power Side-Channel Attack Immunity through High-Efficiency Hardware Obfuscations	250,000
4	Fed - Natl. Science Foundation	US	7/3/2018	Novel phase change materials with tunable transition properties	417,497
5	Fed - Natl. Science Foundation	US	9/13/2018	RAISE-TAQS: Multifunctional hybrid quantum systems for spin-based quantum control and metrology	1,185,968
6	Fed - Natl. Science Foundation	US	5/20/2019	Collaborative Research: ECCS-EPSRC: Development of uniform, low power, high density resistive memory by vertical interface and defect design	250,000
7	Fed - Natl. Science Foundation	US	6/28/2019	Collaborative: Summit on big data and cyberinfrastructure in material research	106,913
8	Fed - Natl. Science Foundation	US	7/12/2019	EAGER: Collaborative Research: Machine-Learning based Side-Channel Attack and Hardware Countermeasures	150,000
9	Fed - Natl. Science Foundation	US	8/20/2019	DMREF: Discovery of high-temperature, oxidation-resistant, complex, concentrated alloys via data science driven multi-resolution experiments and simulations	1,738,752
10	Fed - Natl. Science Foundation	US	9/20/2019	QII-TAQS: Majorana Nanomanipulation for Topological Quantum Computing	300,000
11	Fed - Natl. Science Foundation	US	1/13/2020	I-Corps: Secure 2FA with Wearable Hardware Key using Human Body as a Wire	50,000
12	Fed - Natl. Science Foundation	US	2/4/2020	CAREER: Body-Wire: Transforming Healthcare using Secure Human Body Connected Intelligent Nodes	175,702
13	Fed - Natl. Science Foundation	US	6/16/2020	FET: Small: Ferroelectric Transistor based Spiking Neural Networks with Adaptive Learning for Edge AI: From Devices to Algorithms	499,998
14	Fed - Natl. Science Foundation	US	7/10/2020	Novel two phase vertically aligned nanocomposites beyond oxides	542,471
15	Fed - Natl. Science Foundation	US	7/22/2020	Development of resonators on high temperature piezoelectric materials for harsh environment sensor and oscillator applications	70,000
16	Fed - Natl. Science Foundation	US	9/16/2020	Collaborative Research: SWIFT: LARGE: Broker-Controlled Coexistence of 5G Wireless Artificially Intelligent Power Amplifier Array (AIPAA) with Passive Weather Radiometers	421,666
17	Fed - Natl. Science Foundation	US	5/4/2021	Collaborative Research: FET: Medium: Probabilistic Computing Through Integrated Nano-devices ? A Device to Systems Approach	660,000
18	Fed - Natl. Science Foundation	US	7/21/2021	EAGER: Synchronized Quantum Oscillation between Light and Atoms on a Resonator	250,000

19	Fed - Natl. Science Foundation	US	8/12/2021	FMRG: Cyber: Privacy-Preserving Tiny Machine Learning Edge Analytics Enabling AI-Commons for Manufacturing	2,999,999
20	Fed - Natl. Science Foundation	US	8/12/2021	Planning Grant: Engineering Research Center for Resilient AI Network (RAIN) for next-generation manufacturing	100,000
21	Fed - Natl. Science Foundation	US	9/1/2021	Collaborative Research:FET: Medium: Neuroplane: Scalable Deep Learning through Gate-tunable MoS2I Crossbars	224,776
22	Fed - DHHS	US	7/23/2021	Development of a Silica Dust Direct Reading Sampler with Selectivity for Dust Components and Size	90,000
23	Fed - Dept. of Defense	US	7/3/2018	Ballistic Phosphorene Transistor	650,000
24	Fed - Dept. of Defense	US	7/3/2018	Purdue Tier II Membership in Next Flex (Flexible Hybrid Electronics Innovation Institute)	0
25	Fed - Dept. of Defense	US	7/3/2018	SPIKING-NEURAL COMPUTING: DEVICES, CIRCUITS, AND FABRICATION	512,793
26	Fed - Dept. of Defense	US	7/3/2018	PC@Xtreme - Predictive Chemistry & Physics at Extreme Temperature and Pressure: Molecules, Crystals and Microstructures	7,440,300
27	Fed - Dept. of Defense	US	7/3/2018	Wang - Explore the fundamentals for field-enhanced mass transport phenomena in ceramics	3,000,000
28	Fed - Dept. of Defense	US	7/3/2018	New phase change materials for photonics: from in-silico design to novel device concepts	596,667
29	Fed - Dept. of Defense	US	11/9/2018	Non-Equilibrium Quantum Computing with Spins in Semiconductors	508,363
30	Fed - Dept. of Defense	US	7/16/2019	Wideband and High-Power Reconfigurable Plasma Matching Network for Compact and Efficient Phased Array Emitters	1,101,294
31	Fed - Dept. of Defense	US	8/30/2019	Low Power Compact Non-Volatile Memory and In-Memory Compute Architectures enabled by 2D Piezoelectric Transistors	779,998
32	Fed - Dept. of Defense	US	10/11/2019	Field Emitter Robust Vacuum Integrated Nanoelectronics (FERVIN)	366,464
33	Fed - Dept. of Defense	US	12/17/2019	Radiation-Hard Microelectronics Workforce Development Consortium	16,305,270
34	Fed - Dept. of Defense	US	12/19/2019	Probe the defect generation and propagation mechanisms in flash sintered high temperature ceramics via in situ TEM	360,000
35	Fed - Dept. of Defense	US	2/13/2020	Integrated, Scalable Design Prototyping Process to Improve the Specific Power Efficiency of Radars	245,183
36	Fed - Dept. of Defense	US	5/13/2020	PERFECT - Performance Enhancement of Robust GaN MOSHFETs by Ferroelectric Dielectric and Negative Capacitance Effect	370,000
37	Fed - Dept. of Defense	US	5/15/2020	2D layered multiferroic oxide systems with tunable electromagnetic properties	270,000
38	Fed - Dept. of Defense	US	6/19/2020	Integrated system for in situ study of ceramic sintering mechanism and mechanical properties	297,415
39	Fed - Dept. of Defense	US	10/13/2020	Pilot Health monitoring in Rf-denied environment using Human Body as a Wire	7,500
40	Fed - Dept. of Defense	US	11/30/2020	Nuclear Hyperpolarization assisted Hybrid Quantum Sensor Magnetometry	68,750

41	Fed - Dept. of Defense	US	3/1/2021	Process Development, Device Fabrication and Characterization in Support of BAE Broadband Electronic-warfare-transceivers enabled by Adaptive Magnetostatic-wave-technology (BEAM) program	190,000
42	Fed - Dept. of Defense	US	4/9/2021	USPAE Proposal to CIR CS-20-1302 for Lead Free Defense Electronics	6,231,348
43	Fed - Dept. of Defense	US	6/10/2021	Phase 2: Pilot Health monitoring in Rf-denied environment using Human Body as a Wire	75,000
44	Fed - Dept. of Defense	US	7/9/2021	Phase 2: DARPA SCATE: Synthesizable Countermeasure for EM Side-Channel Attack	105,000
45	Fed - Dept. of Defense	US	7/23/2021	Novel Thermal Management Solutions for Advanced Power Converter Applications	42,368
46	Fed - Dept. of Defense	US	8/15/2021	Phonon Engineering the Coherence of Diamond Color Centers for Quantum Networks	110,000
47	Fed - Dept. of Defense	US	9/24/2021	Nitride-on-Nitride Microwave to Optical Converter	325,000
48	Fed - Dept. of Defense	US	9/29/2021	Mechanically Modulated Microwave Circulator using Cryogenic-MEMS Switches	100,000
49	Fed - Dept. of Defense	US	9/29/2021	NINJA LASER: Nitride-on-Nitride low-Jitter Agile LASER	350,000
50	Fed - Dept. of Defense	US	9/30/2021	Policy Innovations to Enhance the STEM Talent Pipeline	200,000
51	Fed - Dept. of Defense	US	11/19/2021	ENERGY-EFFICIENT VISION-BASED NAVIGATION THROUGH EVENT-BASED SENSING AND HYBRID NEURAL NETWORKS	736,088
52	Fed - Dept. of Energy	US	8/19/2018	Critical Material Institute Year 6 and 7	3,214,100
53	Fed - Dept. of Energy	US	7/19/2019	Achieving Long Range Ordering in Oxide-Metal Hybrid Materials ?A Combined Experimental and Modeling Approach	700,000
54	Fed - Dept. of Energy	US	8/26/2019	Direct Observation of Fractional Quantum Hall Quasiparticle Braiding Statistics via Interferometry	857,000
55	Fed - Dept. of Energy	US	11/17/2020	From Atoms to Devices: Advancing Nanoelectronics through Atomic Scale Electron Energy-Loss Spectroscopy Characterization	40,000
56	Fed - Dept. of Energy	US	11/19/2020	Sandia-Purdue Academic Alliance: High-power Tunable Limiters/Switches	160,000
57	Fed - Dept. of Energy	US	12/2/2020	LDRD/Sandia Academic Alliance (SAA)- Novel 2D oxides for strong multiferroic coupling towards reconfigurable devices	70,000
58	Fed - Dept. of Energy	US	6/23/2021	Ultra-Light, inTegrated, Reliable, Aviation-class, Co-Optimized Motor & Power converter with Advanced Cooling Technology (ULTRA-COMPACT)	105,374
59	Fed - Dept. of Interior	US	10/8/2018	MCOQA: Mechanically-driven, COherence-enhanced Quantum Angle sensor	2,320,920
60	Fed - Dept. of Commerce	US	11/30/2018	NEW LIMITS - NEW materials for Logic, Memory and InTerconnectS	5,550,918
61	Fed - Dept. of Defense	US	6/22/2021	Non-Equilibrium Electron Thermodynamics for Solid-state Power Generation and Deep Cryocooling of Electronic Devices	505,132
62	Fed - Dept. of Defense	US	8/27/2021	TOPOLOGICAL PLASMA STRUCTURES FOR CONTROL OF ELECTROMAGNETIC INTERACTIONS	2,500,000
63	Fed - Dept. of Energy	US	7/3/2018	Integrated growth and ultra-low temperature transport study of the 2nd Landau level of the two-dimensional electron gas	2,333,966

64	Fed - Dept. of Energy	US	12/18/2020	Quantum Science Center	3,910,000
65	Fed - Dept. of Energy	US	12/18/2020	Quantum Science Center	3,910,000
66	Fed - Natl. Science Foundation	US	2/10/2020	CAREER: Superelastic Organic Semiconductors (SOSs): A New Class of Molecular Crystals of Responsive Shape Memory	511,312
67	Fed - Natl. Science Foundation	US	7/29/2020	Collaborative Research: Photocatalytic Ketyl and Amino Radicals-Initiated C-C Bond Formation via Semiconductor-Based Photocatalysts	180,000
68	Fed - Natl. Science Foundation	US	11/5/2021	Collaborative Research: Data-Driven Metrology and Inspection Technology for Semiconductor Wafer-Level Manufacturing	300,000
69	Fed - Dept. of Defense	US	12/21/2018	High Temperature Organic Semiconductors	503,522
70	Fed - Dept. of Defense	US	7/15/2019	W911NF-17-S-0002: Plasticity Mechanisms and Neuromorphic Learning with Correlated Semiconductors	512,387
71	Fed - Dept. of Defense	US	8/14/2019	Applications Driving Architectures (ADA) Center - Leveraging Software Engineering Design Principals to Generate Efficient Hardware	671,000
72	Fed - Dept. of Defense	US	10/14/2021	Topological quantum circuit based on two-dimensional Weyl-semiconductor/superconductor junction	100,000
73	Fed - Dept. of Energy	US	7/3/2018	Charge carrier holes correlations and non-Abelian physics in nanostructures, quantum Hall effect and hybrid superconductor/semiconductor structures	1,080,000
74	Fed - Dept. of Energy	US	1/25/2021	Center for 3D Ferroelectric Microelectronics	250,000

Total US Federal Grants

111,928,834

	Grant Type	Country	Grant Create Date	Grant Title	Grant Value Awarded to Date
1	Foreign Federal Government	Peru	1/20/2021	Programa Nac de Becas y Credito Edu, Fellowship for graduate student	151,330

Total Foreign Federal Grants

151,330