

#### 1972-2022 BSF United States – Israel Binational Science Foundation

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### About The BSF

- Founded in 1972
- Supports basic research in wide range of fields
- Receives about 400 applications each year Approves about 100
- Funding derives from interest on an endowment formed by the two governments
- Has awarded over 5400 grants, valued today at about \$1B
- Small office in Israel and about 6-7% overhead



#### **BSF Governance**

- Ten member Board of Governors
  - > Five from U.S.
  - > Five from Israel
  - > Appointed by respective governments

 Board responsible for financial and management policies of BSF, subject areas and research programs, meet 2x/year

• Chair alternates between Israel & U.S.





#### **GEOGRAPHIC DISTRIBUTION OF GRANTS**





# Quality of BSF Research Is Very High

• Participated in BSF supported projects:

- > 48 Nobel laureates.
- > 8 Turing laureates in Computer Sciences
- > 9 Fields Medal laureats in Mathematics

 In 2004, six of eight Nobel science laureates were previous BSF grantees.

#### **BSF Grant Programs**

- Regular (including start-up) Research Grants
- New program on Climate solutions
- **•** Travel Grants for Young Researchers
- NSF-BSF Joint Funding Research Grants

# **Budget and Expenses**



- Research grants budget includes regular grants, short visits and Transformative science

# Group I Even-Numbered Years (2022,2024...)

- Physics
- Mathematics and Computer Sciences
- Chemistry
- Earth Sciences
- Material Science
- Energy
- Environmental Sciences
- Economics and Sociology
- Psychology



# Group II Odd-Numbered Years (2021, 2023...)

- Health Sciences (Medicine)
- Life Sciences
- Psycho-Biology
- Biomedical Engineering



#### **Group I: Submission and success rates**

AOR	14/15	16/17	18/19	20/21
Physics	90 (30%)	79 (38%)	71 (32%)	77(31%)
Chemistry	44 (27%)	32 (34%)	39 (21%)	43(30%)
Mathematics Computer Sciences	56 (30%) 56 (21%)	47 (34%) 41 (34%)	58 (38%) 29 (45%)	34(44%) 31(26%)
Material Sciences	30 (27%)	42 (33%)	30 (30%)	44(30%)
Atmosph. & Earth Sciences	29 (24%)	22 (27%)	27 (22%)	22(23%)
<b>Environmental Sciences</b>	14 (21%)	17 (12%)	8 (12%)	13(23%)
Ecology	21 (14%)	26(23%)	-	
Energy	9 (22%)	11 (18%)	7 (29%)	6(33%)
Oceanography	13 (23%)	10 (10%)	-	
Economic	17 (18%)	17 (24%)	22 (23%)	16(19%)
Sociology	19 (16%)	13 (23%)	19 (21%)	23(17%)
Psychology		52 (19%)	69 (17%)	72(19%)
Total	398 (25%)	409 (30%)	379 (28%)	381(27%)

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## Group II :submission and success rates

AOR	15/16	17/18	19/20	21/22
Health	87	90	84	99
Sciences	(21%)	(21%)	(23%)	(23%)
life Sciences	200	210	193	178
	(29%)	(28%)	(27%)	(28%)
<b>Biomedical</b>	24	27	24	20
<b>Engineering</b>	(25%)	(22%)	(25%)	(20%)
Psychology	75	20	17	17
Psychobiology	(20%)	(20%)	(24%)	(29%)
Total	386	347	318	314
	(25%)	(25%)	(26%)	(26%)



### **Regular Research Grants**

- Open to all U.S. and Israeli scientists
- Must be at least one scientist from each country
- Nonprofit institutions only- PI from company cannot get funds, except travel.
- Ph.D., M.D., or equivalent required
- Investigators may submit only one proposal to each annual competition (This year 11/29/22).
- Interdisciplinary proposal can be submitted year after year only if it was suggested and approved by the BSF.
- Resubmission can be only one time, unless they received the N3E letter.
- Due to resource constraints not all fields eligible every year

#### **Regular Research Grants**

- In November 2021, 320 proposals submitted. 6 were withdrawn from competition.
- Grants are for 2–4 years
- Generally total \$130K—\$250K
- Co-PIs free to decide how to divide the support between them
- Experimental research gets \$35-55K, theoretical gets \$25-35K, per year, depending on funds distribution between Co-PIs.
- No funding for PI salary



FROM 2017
TOTAL SUCCESS RATE IS EXPECTED TO BE LIMITED TO ~25%
2022 grant budget was increased by 145% (\$284,000 for 4 years, experimental, split between the PIs)



#### **Evaluation Process**

- All proposals are peer reviewed
- Panels of scientific advisors (both Israeli and American) suggest potential reviewers
- Each proposal receives 3-5 substantial reviews
- One or two panel members summarize reviews, make recommendations
- Only excellent proposals are considered for grants.
- Panels rank proposals and grants are awarded according to these ranking
- Number of grants is determined by the Board (total success rate cannot exceed 25%).

#### **Evaluation Criteria**

- Scientific & technological merit
  - > Originality
  - > Importance
  - > Novelty, uniqueness
- Strength of cooperative arrangements
- Anticipated scientific and socio-economic benefits
- Suitability of PIs, equipment, facilities
- PIs' track records

#### Start-Up Research Grants

- Two-year grants help newly-appointed researchers begin their careers
- At least one PI must be < 10 yrs post Ph/MD
- 2 juniors, or a junior and a senior PI who will not be funded
- Preliminary results are not a must.
- Applications compete within framework of regular grants, but success rate is slightly higher (40% in 2021).
- Maximum funding \$75K per young investigator.



# **Rahamimoff Travel Grants**

- For PhD students doing research that requires facilities or expertise not available in their home country
- Grants are \$6,000 for travel & per diem up to 2 months
- Each Israeli institution choose 5 proposals
- In May 2022 only 23 proposals were submitted (9 from US), Nine were granted.
- Next Submission will be on 12/13/2022.

### **Climate Change Solution**

- Bi-annual call for transformative, collaborative and cross-disciplinary proposals that advance development/implementation of climate solution.
- 5-page preproposals submitted (20 arrived, 8 were selected for full proposal, by an expert panel). Full proposals will be evaluated using peer review process.
- We anticipate 2 grants for 3-4 years.
   \$150,000/project/year. Up to \$600,000 per project.



- Initiated in 2012 . 5-year MOU signed in 2013, renewed in 2018.
- Program is active in 28 Divisions in all technical Directorates.
- More than 100 program announcements
- BSF grants to Israelis use special funds received from the Israeli government .
- BSF grants to the Israelis are significantly larger than in the regular program, and taking into account the purchasing power, are almost equivalent to the NSF grants.

- Written jointly by US and Israeli CO-PIs, but submitted separately by US PI to the NSF and Israeli PI to the BSF.
- Evaluation is done by the NSF panels, occasionally with Israeli participation
- <u>No</u> parallel evaluation in Israel-leading agency model
- If selected for funding by the NSF, the US PI is awarded a regular grant by the NSF, and the Israeli is awarded a grant by the BSF

- Israeli PI can submit only one proposal per academic year and only in the last year of his existing grant.
- It is possible to submit same proposal to BSF and BSF-NSF, but if granted, only the BSF-NSF will be funded
- Experimental research will get \$80K per year while theoretical \$57K (Israeli budget).

- The NSF-BSF programs are highly successful: High level of interest by US scientists, and high success rates of the joint applications.
- NSF has expressed interest in expanding this cooperation, and its extent depends on the level of support by the Israeli government.
- The BSF has achieved a level of cooperation with the NSF that, most likely, surpass that of any other country.

- Directorate of Biology:
- Environmental Biology (DEB) no deadline
- Integrative Organismal Systems (IOS) no deadline
- Molecular and Cellular Biology (MCB) no deadline
- Biological Infrastructure (DBI) no deadline
- Ecology and Evolution of Infectious Diseases (EEID) deadline in Nov.
- Enabling Discovery through Genomic Tools (EDGE) deadline in Feb.
- Directorate of Computer and Information Science and Engineering:
- Computational Neuroscience (CRCNS) deadline in Nov.
- Cyber Security and Privacy (SaTC) no deadline
- Computing and Communication Foundations (CCF) no deadline
- Computer and Network Systems (CNS) no deadline
- Information and Intelligent Systems (IIS) no deadline



- Directorate of Engineering:
- Chemical, Bioengineering, Environmental and Transport Systems (CBET) no deadline
- Electrical, Communications and Cyber Systems (ECCS) no deadline
- Civil, Mechanical and Manufacturing Innovation (CMMI) no deadline
- Directorate of Mathematical and Physical Sciences :
- Astronomical Sciences (AST) deadline in Nov.
- Materials Research (DMR) no deadline
- Physics (PHY) various dates between Oct. to Dec.
- Mathematical Sciences (DMS) various dates between Sept. to Dec.



- Directorate of Social, Behavioral and Economic Sciences (SBE): Cognitive Neuroscience (CogNeuro) – deadlines in Aug
- Developmental Sciences (DS) deadlines in Jul.
- Perception, Action & Cognition (PAC) deadlines in Aug.
- Social Psychology deadlines in Jul.
- The Science of Learning and Augmented Intelligence (SL) deadlines in Jul. Decision, Risk and Management Sciences (DRMS) – deadlines in Aug. Economics – deadlines in Aug.
- Directorate of Geosciences :
- Atmospheric and Geospace Sciences (AGS) no deadline
- Earth Sciences no deadline
- Ocean Sciences deadline in Aug. (2 programs with no deadline)
- Special programs: these programs are in each of the divisions/directorates
- EAGER 2 years/transformative/all divisions no deadline



- New NSF-BSF programs:
- Foundational Research in Robotics no deadline
- Mathematical and Scientific Foundations of Deep Learning deadline according to the division
- Integrative Strategies for Understanding Neural and Cognitive Systems deadline in Feb.
- Smart Health and Biomedical Research deadline in Nov.
- Organismal Response to Climate Change deadline in Nov.



Nu	Number of Submissions and Success Rates History in the NSF-BSF Programs									
	13-Dec	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22
Biology IOS	101 (7)			12 (33%)	4(50%)	†	5 (20%)	20 (45%)	22 (32%)	19 (26%)
Biology DEB			3 (33%)*	9 (33%)		†	1 (100%)	7 (57%)	4 (25%)	5 (0)
Biology MCB			, ,	37 (11%)	28 (25%)	28 (14%)	10 (30%)	21 (38%)	19 (37%)	21 (29%)
Biology EEID				3 (33%)		1 (100%)	1 (0)	1 (0)	4 (0)	2 (0)
Biology IOS-EDGE				2 (0%)		8 (0)	4 (50%)	<u>0</u>	3 (33%)	2 (0)
Biology ROL								5 (40%)	2 (50%)	
Comp. Neuro.		12 (8%)	14 (14%)	12 (25%)	15 (33%)	6(0)	8 (13%)	12 (25%)	11 (18%)	9 (33%)
Brain Science		49 (6%)**	(1)**							
Materials				48 (25%)	38 (26%)	23 (17%)	35 (26%)	27 (26%)	25 (32%)	7 (29%)
Chemistry	13 (15%)***	18 (16%)***								
Physics			24 (29%)	16 (31%)	10 (20%)	17 (41%)	19 (26%)	14 (28%)	18 (56%)	15 (47%)
Astronomy								8 (25%)	10 (30%)	10 (10%)
Math								16 (31%)	5 (80%)	6 (33%)
Sustainable				10 (10%)	8 (25%)					
Energy										
Chemical Eng.						5 (40%)	<u>12 (42%)</u>	15 (26%)	20 (30%)	18 (≤22%)
Electrical Eng.				12 (33%))	4 (25%)	6 (66%)	4 (50%)	6 (17%)	2 (0)	≤2 (50%)
Mechanical Eng.									3 (33%)	7 (29%)
Cyber			12 (33%)	12 (25%)	10 (33%)	10 (20%)	2 (100%)	1 (0)	5 (20%)	3 (66%)
Computers CNS					2 (100%)	1 (0)	2 (50%)	2 (50%)	2 (50%)	0
Computers CCF				17 (29%)	21 (33%)	20 (45%)	21 (24%)	20 (10%)	14 (57%)	5 (60%)
Info. & Intelligent						10 (229/)	17 (129/)	18 (33%)	4 (100%)	2 (229/)
Syst						10 (33%)	17 (1270)	18 (33 %]	4 (100%)	5 (55%)
Earth Sciences				12 (25%)	5(20%)	5 (40%)	7 (43%)	4 (25%)	4 (50%)	3 (0)
Oceanography			17 (5%)	20 (25%)	6 (17%)	1(0)	5 (20%)	7 (0)	6 (0)	<3
Atmospheric										
Science								2 (0)	3 (66%)	2 (50%)
Econ./Decision				1 (0%)	6 (0%)					
Sciences									9 (22%)	5 (20%)
Behav. &			4 (50%)	24 (21%)	6 (33%)****	1 (100%)****			25 (8%)	12 (17%)
Cognitive Sci.				,		,,			,,	
NCS									3	1 (100%)
SCH									_	
Robotics									1 (0)	
Scale MoDL									1 (0)	
Total			74 (23%)	247(24%)*	163 (26%)*	150 (28%)	153 (28%)	206 (29%)	225 (33%)	<160 (28%)
* Full proposals c	only. Pre-prop	osal stage is no	ot included.					<b>_</b>		
** An EAGER progr	ram that is no	t an annual pro	ogram.							
*** The Internatio	nal Program i	in Chemistry w	as terminated	by the NSF.						
**** Resubmissio	ns only. The p	rogram is on h	old.							
† submission dela	ay due to move	e to no deadlin	e by the NSF d	ivision						
fo. & Intelligent /st Irth Sciences ceanography tmospheric ience ience iences ehav. & ognitive Sci. CS CH obotics iale MoDL otal Full proposals c * An EAGER progr ** The Internatic *** Resubmission dela	only. Pre-prop ram that is no onal Program i ns only. The p ay due to move	osal stage is no t an annual pro in Chemistry wa rogram is on h e to no deadlin	17 (5%) 4 (50%) 74 (23%) ot included. ogram. as terminated old. e by the NSF d	12 (25%) 20 (25%) 1 (0%) 24 (21%) 24 (21%) 247(24%)* by the NSF.	5(20%) 6 (17%) 6 (0%) 6 (33%)**** 163 (26%)*	18 (33%) 5 (40%) <u>1(0)</u> 1 (100%)**** <u>150 (28%)</u>	17 (12%) 7 (43%) <u>5 (20%)</u> 153 (28%)	18 (33%) 4 (25%) 7 (0) 2 (0) 2 (0) 206 [29%]	4 (100%) 4 (50%) 6 (0) 3 (66%) 9 (22%) 25 (8%) 3 1 (0) 1 (0) 225 (33%)	3 (33%) 3 (0) ≤3 2 (50%) 5 (20%) 12 (17%) 1 (100%) ≤160 (28%)

	2017	/18	2018/19		2019/20		2020/1		2021/2	
	#	Suc. Rate	#	Suc. Rate	#	Suc. Rate	#	Suc. Rate	#	Suc. Rate
BIO	43	12%	29	28%	66	39%	65	29%	49	22%
MPS	41	27%	54	26%	65	28%	59	42%	31	32%
								_		
Eng							20	25%	27	26%
<u>Ling.</u>	11	54%	16	44%	20	24%	20	2370	21	20%
CISE	49	35%	42	24%	41	22%	26	54%	19	42%
GEO	7	29%	12	33%	13	8%	13	31%	7	14%
SBE							34	12%	17	18%
Total	150	28%	153	28%	206	29%	225	33%	160	28%
										BSF
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#### Collaboration

- Role of the Israeli partner should be clearly explained, including why his participation is important
- Both should be full partners, not just figureheads. Remember that the proposal is evaluated by the NSF and if the role of the US PI will be negligible, or not impressive, the proposal is not likely to be funded!!!



#### Collaboration

- Write a collaboration plan that will explain in details the mechanics of the collaboration. Show that you thought about it and it is well planned.
- Depending on the program, you may use a separate document to describe the cooperation. Find out if it counts against the page limit.
- Very important to mention student exchange and to add PhD students and Post-docs involved.





# Good Luck!

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