

HEROES OF SCIENCE: BREAKTHROUGH FILMMAKERS CHALLENGE

NO PURCHASE OR PAYMENT NECESSARY TO ENTER OR WIN. VOID WHERE PROHIBITED. SUBJECT TO ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.

THESE RULES CONTAIN AN ARBITRATION AGREEMENT, WHICH WILL, WITH LIMITED EXCEPTION, REQUIRE YOU TO SUBMIT CLAIMS YOU HAVE AGAINST SPONSORS (AS DEFINED BELOW) TO BINDING AND FINAL ARBITRATION. UNDER THE ARBITRATION AGREEMENT, (1) YOU WILL ONLY BE PERMITTED TO PURSUE CLAIMS AGAINST SPONSORS ON AN INDIVIDUAL BASIS, NOT AS A PLAINTIFF OR CLASS MEMBER IN ANY CLASS OR REPRESENTATIVE ACTION OR PROCEEDING, AND (2) YOU WILL ONLY BE PERMITTED TO SEEK RELIEF (INCLUDING MONETARY, INJUNCTIVE, AND DECLARATORY RELIEF) ON AN INDIVIDUAL BASIS. BY SUBMITTING YOUR ENTRY, YOU AGREE TO RELEASE, DISCHARGE AND HOLD HARMLESS THE SPONSORS AND THE OTHER RELEASED PARTIES FROM ANY LOSSES, ARISING OUT OF YOUR PARTICIPATION IN THIS COMPETITION AND THE ACCEPTANCE AND USE, MISUSE, OR POSSESSION OF ANY PRIZE.

These official rules are located at <https://go.thewrap.com/breakthrough-filmmakers-challenge/> (“Rules”) and an extension of the Privacy Policy located <https://filmfreeway.com/page/privacy-policy> (“Privacy Policy”). Please read the Rules, including but not limited to the eligibility requirements, submission criteria, selection criteria and timeline below, and Privacy Policy carefully, as they describe the conditions under which the participant (“You” and “Your”) are allowed to participate in the Competition. By participating in the Competition, You expressly consent to these Rules and the Privacy Policy. The Rules and Privacy Policy may be amended from time to time and thus you should check back periodically. Your continued use of this website on which these Rules are posted at <https://go.thewrap.com/breakthrough-filmmakers-challenge/> (this “Website”) and/or your entry into the Competition under your FilmFreeway account indicates your acceptance of any changes.

1. **Overview.** Competition submission dates February 3, 2020 through March 31, 2020 (such period, the “Competition Submission Period”). The Competition winners will be announced in June 2020 at the TheGrill conference hosted by TheWrap (“TheGrill”). The Heroes of Science: Breakthrough Filmmakers Challenge (the “Competition”) is a skill-based competition that seeks to select 6 visionary filmmakers with the ability to produce engaging, original, accurate short films (2 minutes maximum)

about past Breakthrough Prize laureates' science and/or lives. The Competition is sponsored by the Breakthrough Prize Foundation ("BPF"), the Breakthrough Prize in Life Sciences Foundation (collectively with BPF, "Breakthrough") and TheWrap (each a "Sponsor" and together the "Sponsors").

2. **Eligibility.** You must be 18 years of age as of January 27, 2020 at 11:59 PM Pacific Daylight Time ("PDT") to participate. VOID WHERE PROHIBITED OR RESTRICTED BY LAW.

You must have a track record including at least one short film, commercial, music video, documentary or feature film of competition or broadcast quality.

You may apply as individuals or as two-person creative teams comprised of writers, directors and/or producers only; provided that if entering in a team each member of such team shall meet the eligibility criteria set forth herein. Entries are limited to individuals or two-person groups only; commercial enterprises and business entities are not eligible.

You must have or be capable of gaining an appropriate visa for filming within the United States of America ("USA") by June 2020 and such visa must be effective through December 2020. You must reside in a jurisdiction other than any jurisdiction comprehensively sanctioned by the United States Office of Foreign Asset Control ("OFAC") at the time the Entry is submitted (the list of sanctions programs administered by OFAC is available at <https://www.treasury.gov/resource-center/sanctions/programs/pages/programs.aspx>) and which is not otherwise subject to OFAC sanctions. Proficiency in English is required to participate in the programs, as it will be the common language used. All materials must be submitted in English.

Entries submitted will only be eligible if such Entries do not contain content that is unlawful, hateful or obscene, in Sponsors' sole discretion, and do not infringe a third party's copyright or other infringement of a third party's intellectual property rights.

By participating in the Competition, You warrant that You are eligible to participate in the Competition. Failure to comply with the Rules may result in disqualification and will allow Sponsors to select an alternate winner. Employees, independent contractors, officers, directors and donors of Sponsors, members of the Selection Committee and any of the foregoing's affiliates and subsidiaries, and its and their respective advertising, promotion, and fulfillment agencies, and their immediate family members and persons living in the same household, are not eligible to participate in the Competition. An "immediate family member" of any individual means his or her spouse, ancestors, children, grandchildren, great-grandchildren and the spouses of his or her children, grandchildren and great-grandchildren. Additionally, any individual (or immediate family member thereof) who is the owner of more than 20 percent of (i) the total combined voting power of a corporation, (ii) the profits interest of a partnership

or (iii) the beneficial interest of a trust or unincorporated enterprise which is a substantial contributor to Sponsors is prohibited from entering the Competition.

- 3. Content.** The content created or provided by You must be Your own. You represent and warrant that (i) Your entry (“Entry”) is an original work created solely by You or Your team, as applicable, and that You or Your team, as applicable, own all intellectual property in and to the Entry, (ii) Your Entry does not violate any applicable law, rule or regulation, (iii) no other party has any right, title, claim or interest (or potential right, title, claim or interest) in the Entry (including intellectual property rights), except as expressly identified by You to us in writing, (iv) You own and are free to grant to the Sponsors all rights in and to Your Entry that is granted herein and (v) use of Your Entry by Sponsors will not infringe or involve the misappropriation of any third party rights. You agree to indemnify and hold harmless the Sponsors and their respective affiliates from and against any breach of this warranty.

- 4. How to Submit an Entry.** NO PURCHASE NECESSARY TO ENTER OR CLAIM PRIZE. A PURCHASE WILL NOT INCREASE YOUR CHANCES OF WINNING.

To submit an Entry for the Competition, go to <https://go.thewrap.com/breakthrough-filmmakers-challenge/>) click “Submit” at the bottom of the webpage and follow the on-screen instructions to the FilmFreeway submission site and create a free FilmFreeway account. All Entry components must be submitted through Your FilmFreeway account (free of charge).

Limit to one (1) Entry per person during the Competition Submission Period. You may not Enter under more than one FilmFreeway account; multiple Entries by You are not allowed and may be disqualified. ALL ENTRIES MUST BE RECEIVED BY March 31, 2020 at 11:59 PM PDT. Participation in the Competition is voluntary and does not require You to purchase anything from Sponsors. No illegible, incomplete, forged or altered Entries will be accepted. All Entries become the property of Sponsors and will not be returned.

- 5. Submission Criteria.**

Entries for the Competition are comprised of creative proposals for a short film about one of the following Breakthrough Prize laureates [from previous years](#): (1) Ed Boyden, (2) Joanne Chory, (3) Jennifer Doudna, (4) Fabiola Gianotti, (5) Svante Pääbo, (6) Terence Tao, (7) Kip Thorne, (8) Cumrun Vafa, (9) Huda Zoghbi, or (10) Shep Doleman and the Event Horizon Telescope Team (see the Appendix for [short descriptions](#) of the winners) (collectively, the “Laureates”). Your Entry must be based on research from publicly available sources. You are not allowed to contact any Laureate (directly or indirectly) for purposes of Your Entry.

The proposal should focus on the character of the Laureate and their recognized work, and may include an event in their lives, a particular theoretical / experimental breakthrough, and/or their impact on the world.

Each Entry must include:

- A written description of Your proposed creative treatment for the short film (one page) based on a maximum \$25,000 USD production budget, detailing how You would approach a documentary about Your chosen Laureate, incorporating both the Laureate and their recognized work. The contributions of all members listed on Your Entry and how each person would take part in the production of a commissioned short documentary must be detailed in Your Entry;
- Director's statement (half-page);
- Director's biography (half-page);
- Visual references (up to three pages);
- Detailed written breakdown of production budget (one page);
- Proposed composition of production team (one page); and
- An example of Your previous documentary work (short or feature) (one page with hyperlink to video of work on free, publicly accessible platform like YouTube or Vimeo; any related passwords must remain valid for duration of Competition, through March 31, 2020).

The written proposal is not to exceed eight pages total.

6. Selection of Winners.

- a. **Selection Criteria:** Each of the selection criteria (the "Selection Criteria") listed below shall be weighted evenly:
 - Engagement: does the proposal capture the viewer's interest and emotions?
 - Characterization: how well is the Laureate's personality evoked?
 - Creativity: does the proposal take a fresh or original approach?
 - Clarity: is one aspect of the Laureate's work communicated simply and comprehensibly?
 - Accuracy: is the creative proposal scientifically correct?
 - Vision: is the filmmaking approach to presenting the subject matter clearly detailed and thoughtfully composed?

- Experience: does the filmmaker's previous work successfully demonstrate an ability to thoughtfully showcase subject matter with solid production value?
- b. **Assessment Phases:** There are two phases of assessment for each eligible Entry, which are listed below.
- *Round 1.* Upon submitting Your Entry, qualified Entries will be reviewed by Breakthrough's Director of Programming for the Competition, with scores between 1-10 (with 10 being the highest) awarded in each area of the Selection Criteria. Based on scores, the Director of Programming will determine the shortlist of top 25 Entries with the most cumulative points in the Selection Criteria (the "Shortlist") to move on to Round 2. Where a tie occurs in Round 1, more than 25 submissions may move on to Round 2.
 - *Round 2.* The six winning Entries (the "Winners") will be selected out of the Entries that made it to the Shortlist during Round 1. These Winners will be selected by a selection committee (the "Selection Committee") comprised of:
 - One representative of TheWrap;
 - One renowned filmmaker/Hollywood celebrity;
 - One representative of Breakthrough;
 - One Breakthrough Prize laureate; and
 - One science communicator.

The Selection Committee members will score the Shortlist Entries based on the Selection Criteria and will determine the Winners based on the highest combined scores. Where a tie occurs in Round 2, Breakthrough's Director of Programming for the Competition shall determine which Entry had the higher cumulative score in the Selection Criteria.

7. **Grant of Rights.** You hereby irrevocably grant the Sponsors and their parents, subsidiaries, affiliates, legal representatives, assigns, agents, and licensees a royalty-free, fully paid-up, perpetual, sublicensable (through multiple tiers) worldwide right and license to perform, publish, distribute, display and otherwise use Your name, city and state, image, voice, likeness, appearance, visual representation, photos, statements, biographical materials, Prize information and other material and information provided to Sponsors (the "Information"), without limitation, for the Sponsors' promotional purposes without further permission or compensation, to the extent permitted by law. You hereby waive any right to inspect or approve any finished product(s) or material(s) incorporating all or any portion of Your Information.

8. Winners.

The Winners will be announced in June 2020 at the TheGrill. The Winners will not be required to attend TheGrill to receive the Prize.

On or prior to May 31, 2020, an email notification will be sent to the Winners to the email addresses provided at the time of Entry and associated with Your FilmFreeway account. Where lawful, the Winners will be required to verify his or her eligibility by completing, signing, notarizing, and returning an Affidavit of Eligibility/Liability Release, and, where lawful, a Publicity Release within five (5) business days of attempted email notification, or the Prize may be forfeited and the entrant with the next highest score may be contacted as an alternate Winner. Additionally, each Winner may be required to show proof of identification for verification purposes. If the Prize is forfeited for any reason, the entrant with the next highest score, subject to the tiebreaker (if applicable), may be contacted as an alternate Winner.

9. **Winners List.** The names of the Winners will be posted on this Website after verification and announcement of the Winners and will remain posted for at least ninety (90) days thereafter.

10. Prizes.

One (1) Prize (“Prize”) will be awarded to each of the Winners consisting of a \$5,000 cash prize. Restrictions, conditions, and limitations may apply. In addition, the Winners will be granted an opportunity to produce a short film on a 2021 Breakthrough Prize laureate, with a production budget of up to \$25,000 (“Production Budget”), subject to the production guidelines and timeline set forth below and by Breakthrough and the signing of a production contract between the Winner and Breakthrough (“Production Contract”). For the avoidance of doubt, the Production Contract and the Production Budget shall not be deemed part of the Prize, and Winners will receive the Prize regardless of whether they enter into the Production Contract.

Prizes cannot be transferred, redeemed for cash or substituted by the Winners. The Prize must be accepted as awarded. Sponsors reserve the right in their sole and absolute discretion to award a substitute prize of equal or greater value if the Prize described in these Rules is unavailable or cannot be awarded, in whole or in part, for any reason.

Any and all Prize related taxes and expenses, including without limitation any and all federal, state, provincial and/or local taxes shall be the sole responsibility of the Winners. Winners will be issued an IRS Form Misc-1099 for the actual value of the Prize and are advised to seek independent counsel regarding the tax implications of the Prize winnings. The odds of winning the Prize depend on the number of eligible Entries received during the Competition Submission Period.

11. Timeline.

- January 27, 2020: Competition announced during a co-hosted event between TheWrap and Breakthrough Prize Foundation at the Sundance Film Festival 2020
- February 3 – March 31, 2020: Submission window
- March 31, 2020: Deadline for submission Entries
- March 31 – April 17, 2020: Round 1 Shortlist selection
- April 18 – May 1, 2020: Round 2 final judging with Selection Committee
- April 27 – May 31, 2020: Winners notified and confirmed
- June 2020: Winners announced during TheGrill 2020
- May 31, 2020: Winners are connected with laureates and given production schedule, guidelines and requirements (including pre- and post-production), payment schedule, and related paperwork
- June 12, 2020: Winners submit paperwork, budget and production plan for approval to Breakthrough
- June 26, 2020: Approvals, notes and amendment requests on budget and plan sent to Winners
- July 3, 2020: Amended budgets and production plans sent to Breakthrough
- July 10, 2020: Production and budget approvals granted by Breakthrough; production of shorts commences
- August 7, 2020: Principal photography concludes
- September 11, 2020: First edit of laureate shorts delivered to Breakthrough
- September 12 – 18, 2020: Review and comments delivered to Winners
- September 30, 2020: Second edit delivered to Breakthrough
- October 1 – 15, 2020: Final reviews and edit if necessary
- October 15 – 30, 2020: Online delivery to Breakthrough Prize producers
- November 2020: At the discretion of Breakthrough, Laureate shorts air live during the Breakthrough Prize ceremony and in subsequent edited broadcasts in the US and internationally

12. Limitation of Liability and Release. By submitting Your Entry, You agree to release, discharge and hold harmless the Sponsors, members of the Selection Committee, and their respective partners, affiliates, subsidiaries, advertising agencies, consultants, legal counsel, advertising, public relations, promotional, fulfillment and marketing agencies, website providers, Web masters, agents, employees, officers, directors and representatives (all of the foregoing, the “Released Parties”) from any direct, indirect, special, incidental or consequential liabilities, damages, claims, losses, costs, expenses, actions, demands or suits, whether in contract, tort (including negligence), statute or otherwise and whether pecuniary or non-pecuniary, including, but not limited to, loss of profits, legal costs, and defense or settlement costs (“Losses”), arising out of Your participation in this Competition and the acceptance and use, misuse, or possession of any Prize. The Released Parties assume no responsibility for any error, omission, interruption, deletion, defect, or delay in operation or transmission; communications line failure; theft or destruction of or unauthorized access to Entries or application forms; or alteration of Entries or application forms. Released Parties are not responsible for any problems with or technical malfunction of any telephone network or lines, computer online systems, servers or providers, computer equipment, software, failure of any Entry to be received on account of technical problems or traffic congestion on the Internet or any website, human errors of any kind, or any combination thereof, including any injury or damage to Your or any other persons' computers related to or resulting from participation, uploading or downloading of any materials related to this Competition. The Released Parties are not responsible for any incorrect or inaccurate information, whether caused by any website users, tampering, hacking or by any of the equipment or programming associated with or utilized in the Competition and assume no responsibility for any error, omission, interruption, deletion, defect, delay in operation or transmission, communications line failure, technical error, theft or destruction or unauthorized access to any Competition-related website(s).

If for any reason, the Competition is not capable of running as planned, the Sponsors reserve the right, at their sole discretion, to cancel, terminate, modify or suspend the Competition and/or proceed with the Competition, including the selection of the Winners in a manner it deems fair and reasonable (with or without reference to the public votes). The Competition is subject to all federal, state, and local laws and regulations. The Competition may be canceled, terminated, modified or suspended, and You should check back periodically. Your continued use of this Website and/or Your entry into the Competition under Your FilmFreeway account indicates your acceptance of any cancellation, termination, modification or suspension.

Without limiting the foregoing, everything regarding the Competition, including this Website, FilmFreeway website, and the Prize, are provided “as is” without warranty of any kind, either express or implied, including, but not limited to, the implied warranties of merchantability, fitness for a particular purpose or non-infringement. Some jurisdictions may not allow the limitations or exclusions of liability for incidental or

consequential damages or exclusions of implied warranties, therefore some of the above limitations or exclusions may not apply. Check local laws for any restrictions or limitations regarding these limitations or exclusions.

13. **Governing Law.** THIS COMPETITION IS VOID WHERE PROHIBITED. You agree that this Competition shall be subject to and governed by the laws of the State of California and the United States of America.

14. ARBITRATION AGREEMENT; DISPUTE RESOLUTION BY BINDING ARBITRATION.

PLEASE READ THIS SECTION CAREFULLY AS IT AFFECTS YOUR RIGHTS.

- a. **Agreement to Arbitrate:** This section is referred to in these Rules as the “Arbitration Agreement.” You agree that any and all disputes or claims that have arisen or may arise between You and the Sponsors, whether arising out of or relating to these Rules, the Competition, Your participation in the Competition, the Prize, acceptance, possession, use or misuse of the Prize, any advertising, or any aspect of the relationship between You and the Sponsors, shall be resolved exclusively through final and binding arbitration, rather than a court, in accordance with the terms of this Arbitration Agreement, except that You may assert individual claims in small claims court, if Your claims qualify. Further, this Arbitration Agreement does not preclude You from bringing issues to the attention of federal, state or local agencies, and such agencies can, if the law allows, seek relief against Sponsors on Your behalf. You agree that, by participating in the Competition, You and the Sponsors are each waiving the right to a trial by jury or to participate in a class action. Your rights will be determined by a neutral arbitrator, not a judge or jury. The Federal Arbitration Act governs the interpretation and enforcement of this Arbitration Agreement.
- b. **PROHIBITION OF CLASS AND REPRESENTATIVE ACTIONS AND NON-INDIVIDUALIZED RELIEF: YOU AND THE SPONSORS AGREE THAT EACH OF US MAY BRING CLAIMS AGAINST THE OTHER ONLY ON AN INDIVIDUAL BASIS AND NOT AS A PLAINTIFF OR CLASS MEMBER IN ANY PURPORTED CLASS OR REPRESENTATIVE ACTION OR PROCEEDING. UNLESS BOTH YOU AND THE SPONSORS AGREE OTHERWISE, THE ARBITRATOR MAY NOT CONSOLIDATE OR JOIN MORE THAN ONE PERSON’S OR PARTY’S CLAIMS AND MAY NOT OTHERWISE PRESIDE OVER ANY FORM OF A CONSOLIDATED, REPRESENTATIVE, OR CLASS PROCEEDING. ALSO, THE ARBITRATOR MAY AWARD RELIEF (INCLUDING MONETARY, INJUNCTIVE, AND DECLARATORY RELIEF) ONLY IN FAVOR OF THE INDIVIDUAL PARTY SEEKING RELIEF AND ONLY TO**

THE EXTENT NECESSARY TO PROVIDE RELIEF NECESSITATED BY THAT PARTY'S INDIVIDUAL CLAIM(S).

- c. **Pre-Arbitration Dispute Resolution:** The Sponsors are always interested in resolving disputes amicably and efficiently, and most of Your concerns can be resolved quickly and to Your satisfaction by emailing the Sponsors' support team at HeroesOfScience@thewrap.com. If such efforts prove unsuccessful, a party who intends to seek arbitration must first send to the other, by certified mail, a written Notice of Dispute ("Notice"). The Notice to the Sponsors should be sent to each Sponsor's address listed in Section 15 below. The Notice must (i) describe the nature and basis of the claim or dispute and (ii) set forth the specific relief sought. If the Sponsors and You do not resolve the claim within sixty (60) calendar days after the Notice is received, You or the Sponsors may commence an arbitration proceeding. During the arbitration, the amount of any settlement offer made by any Sponsor or You shall not be disclosed to the arbitrator until after the arbitrator determines the amount, if any, to which You or any Sponsor is entitled.
- d. **Arbitration Procedures:** Arbitration will be conducted by a neutral arbitrator in accordance with the American Arbitration Association's ("AAA") rules and procedures, including the AAA's Supplementary Procedures for Consumer-Related Disputes (collectively, the "AAA Rules"), as modified by this Arbitration Agreement. For information on the AAA, please visit its website, <http://www.adr.org>. Information about the AAA Rules and fees for consumer disputes can be found at the AAA's consumer arbitration page, http://www.adr.org/consumer_arbitration. If there is any inconsistency between any term of the AAA Rules and any term of this Arbitration Agreement, the applicable terms of this Arbitration Agreement will control unless the arbitrator determines that the application of the inconsistent Arbitration Agreement terms would not result in a fundamentally fair arbitration. The arbitrator must also follow the provisions of these Rules as a court would. All issues are for the arbitrator to decide, including, but not limited to, issues relating to the scope, enforceability, and arbitrability of this Arbitration Agreement. Although arbitration proceedings are usually simpler and more streamlined than trials and other judicial proceedings, the arbitrator can award the same damages and relief on an individual basis that a court can award to an individual under these Rules and applicable law. Decisions by the arbitrator are enforceable in court and may be overturned by a court only for very limited reasons.

Unless the Sponsors and You agree otherwise, any arbitration hearings will take place in a reasonably convenient location for all parties with due consideration of their ability to travel and other pertinent circumstances. If the parties are unable to agree on a location, the determination shall be made by AAA. If Your claim is for \$10,000 or less, the Sponsors agree that You may choose whether the arbitration will be conducted solely on the basis of documents submitted to the arbitrator,

- through a telephonic hearing or by an in-person hearing as established by the AAA Rules. If Your claim exceeds \$10,000, the right to a hearing will be determined by the AAA Rules. Regardless of the manner in which the arbitration is conducted, the arbitrator shall issue a reasoned written decision sufficient to explain the essential findings and conclusions on which the award is based.
- e. **Costs of Arbitration:** Payment of all filing, administration, and arbitrator fees (collectively, the “Arbitration Fees”) will be governed by the AAA Rules, unless otherwise provided in this Arbitration Agreement. Any payment of attorneys’ fees will be governed by the AAA Rules.
 - f. **Confidentiality:** All aspects of the arbitration proceeding, and any ruling, decision, or award by the arbitrator, will be strictly confidential for the benefit of all parties.
 - g. **Severability:** If a court or the arbitrator decides that any term or provision of this Arbitration Agreement other than clause 14 (b) above is invalid or unenforceable, the parties agree to replace such term or provision with a term or provision that is valid and enforceable and that comes closest to expressing the intention of the invalid or unenforceable term or provision, and this Arbitration Agreement shall be enforceable as so modified. If a court or the arbitrator decides that any of the provisions of clause 14 (b) is invalid or unenforceable, then the entirety of this Arbitration Agreement shall be null and void. The remainder of these Rules will continue to apply.

15. Sponsors.

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Washington, D.C. 20036

Breakthrough Prize in Life Sciences Foundation
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Appendix

BREAKTHROUGH FILMMAKERS CHALLENGE

Contest Selected Breakthrough Prize Laureates

Entries for the Competition are comprised of creative proposals for a short film about one of the below Breakthrough Prize laureates from prior year contests. Your Entry must be based on research from publicly available sources. You are not allowed to contact any Laureate (directly or indirectly) for purposes of Your Entry.

Ed Boyden - Life Sciences; MIT Media Lab

Boyden is a professor of biological engineering and brain sciences at MIT. Among other inventions, he is one of the pioneers of optogenetics, the ground-breaking technique for controlling neurons with light, and expansion microscopy, a technique for inflating cellular structures up to 1000 times larger so that they can be studied with ordinary microscopes.

Joanne Chory - Life sciences; Salk Institute for Biological Studies

Chory has done seminal work on the molecular pathways governing plants' response to sunlight, including discovering which genes cause seedlings to grow upwards in soil and sprout leaves upon reaching the surface. In recent years her lab has been working on developing new plants that can store carbon much more permanently in the soil, so mitigating the effects of climate change.

Shep Doeleman and the Event Horizon Telescope Team – Physics

The **Event Horizon Telescope Team** (“EHT”) is an international collaboration that in 2019 produced the first photograph of the environment of a black hole - specifically the event horizon, the “point of no return” beyond which even light cannot escape. The image - captured using telescopes in Arizona, Sierra Nevada, Chile, Mexico, Hawai'i, and the South Pole - triumphantly confirmed the theoretical predictions made on the basis of Einstein's general relativity. And EHT's observations promise more key tests of fundamental physics in years to come, including strong gravity effects that are expected near a black hole, and dynamics near the black hole as matter orbits at near-light speeds.

Jennifer Doudna - Life sciences; University of California, Berkeley

Doudna is one of the discoverers of CRISPR-Cas 9, a bacterial immune system that she and her colleagues engineered into a near-universal gene-editing tool that allows scientists to hone in on particular genes, cut them out of their strand of DNA, and replace them with another sequence. This technology has enormous potential for medicine, industry and other fields.

Fabiola Gianotti - Fundamental Physics; CERN

Gianotti is an experimental particle physicist who is Director General of CERN, where she has worked as a physicist for over 25 years. Her work has included detector R&D, construction, software development and data analysis from particle physics experiments. From 2009 to 2013, she was project leader for the ATLAS experiment, one of the two experiments that discovered the Higgs boson in 2012.

Svante Pääbo - Life sciences; Max Planck Institute for Evolutionary Anthropology

Svante Pääbo founded the field of paleogenetics - the study of ancient DNA found in fossils. He was the first scientist to successfully sequence the genome of Neanderthals, a closely-related species to modern humans that became extinct about 40,000 years ago. In the process, he discovered that some genes of Neanderthal origin are preserved in the genomes of people today. This implies that the two species must have interbred.

Terence Tao - Mathematics; University of California, Los Angeles

Tao is considered one of the greatest living mathematicians. His work spans an extraordinary range of fields, including harmonic analysis, combinatorics, partial differential equations, and analytic number theory. Some of his most famous results have concerned prime numbers. For instance, he proved that every odd number (except 1) is the sum of at most 5 prime numbers.

Kip Thorne, Caltech

Thorne is one of the world's leading theorists in general relativity and gravitational astrophysics. He is a co-founder of the LIGO project which in 2015 detected gravitational waves from colliding black holes, and for which he made many contributions in experimental design, engineering and data analysis techniques. He is also known for his work popularizing science, including as scientific consultant on the movie *Interstellar*.

Cumrun Vafa - Fundamental Physics; Harvard University

Professor Vafa is world-renowned for his groundbreaking work in string theory and the mathematical technology needed to explore this field. He is one of the founders of the duality revolution in string theory which has reshaped our understanding of the fundamental laws of the universe. He has uncovered mysteries of black holes using topological aspects of string theory and is the founder of 'F-theory' which is one of the most promising directions in connecting string theory solutions known as the 'string landscape' to particle physics.

Huda Zoghbi - Life sciences; Baylor College of Medicine

Zoghbi is a neurogeneticist at Baylor College of Medicine, as well as Director of the Jan and Dan Duncan Neurological Research Institute in Texas. She has found genetic mutations responsible for two rare neurodegenerative diseases, which also promises to impact our understanding of more common diseases like Parkinson's and autism.