

SONIT SISOLEKAR

Achievements and Training at Age 14 years (written in third person)

INTERNATIONAL LEVEL ACHIEVEMENTS

1. **Abstract selected and presented for Oral Presentation for the 52nd LPSC 2021** (Lunar and Planetary Sciences Conference) organized by **LPI** (Lunar and Planetary Institute), **USRA**, **NASA**. His research topic is: **A RHEOLOGICAL, MATHEMATICAL AND STATISTICAL COMPARISON OF LUNAR RILLES AND TERRESTRIAL LAVA TUBES**. The study utilizes the latest databases of Lunar rilles and terrestrial lava tubes for morphometric analysis; and to derive various parameters, mathematically and statistically, related to the rheological properties of the lava tubes. Petrography evidence suggested fast cooling of lunar lavas, but huge dimensions of lunar rilles suggest that they should have flown for longer durations. This was the enigma, and we were successful in finding an explanation for it - Lunar lavas, *in spite of rapid cooling*, flowed for longer distances because of their *extremely high velocities*. He has done this research with the help of SAVITRIBAI PHULE PUNE UNIVERSITY, INDIA.
2. Won at the **NASA COMPETITION** (NASA – CIS INTERNATIONAL COMPETITION -2019), for RESEARCH (at the age of 12 years) on the '**POSSIBLE ROLE OF IONIZING RADIATIONS IN THE REDDENING OF MAR'S SOIL.**' His research samples of **volcanic rock powders and volcanic ash were sent by NASA to the Space** (Stratosphere) via NASA's NASA Columbia Scientific Balloon Facility.
3. Won at **the NATIONAL ASTRONOMICAL OBSERVATORY OF JAPAN's (NAOJ) ESSAY COMPETITION**, One Family One Telescope International Competition (Astronomy for All), organized by the IAU (**INTERNATIONAL ASTRONOMICAL UNION**) and NAOJ (NATIONAL ASTRONOMICAL OBSERVATORY OF JAPAN); he was

awarded with a NAOJ TELESCOPE. He had written about how a telescope can be used to spread information about Astronomy and instill scientific temper in the community of common people.

4. **Abstract selected and presented for Oral Presentation for the 6th East African Astronomical Society (EAAS) Workshop/Conference 2021** (20 – 22 MAY 2021), Dodoma, Tanzania jointly organized by Open University Of Tanzania (OUT), University Of Dodoma(UDOM) and East Africa Road. Title of the presented paper – Effective Use of the Local Geology for the Popularization of Planetary Geology and Astronomy; and Promoting of Astro-Geo Tourism. He presented a novel model of Astro-Geo tourism conceptualized by himself, named AGATE (Astronomy & Geology Awareness, Tourism and Education): A possible model for a rural planetary-geology awareness program. This is the first model of astronomy popularization which will popularize planetary geology with the help of local geological features found in the participating villages. It is aimed to be a sustainable project which will help in the attainment of some of the UN SDGs (goals).

5. He has been awarded a **DISTINCTION** in the **2021 Big Science Competition organized by Australian Science Innovation**.

ONGOING RESEARCH PROJECTS

1. **A Rheological, Mathematical and Statistical Comparison of Lunar Rilles and Terrestrial Lava Tubes.** The study utilizes the latest databases of Lunar rilles and terrestrial lava tubes for morphometric analysis; and to derive various parameters, mathematically, related to the rheological properties of the lava tubes. The abstract for this study has been selected for the 52nd LPSC 2021. The study will be continued further for a full paper publication. Next steps, or the next study will be to verify the findings of this study with the help

of petrographic evidences from the Lunar and Terrestrial samples of the respective lavas.

2. **The Possible Role of Ionizing Radiations in the Reddening of Martian Soil.** For this study, the samples of volcanic rock powders (from Deccan traps, India) and volcanic ash (from the Taftan volcanic eruption, Iran) were sent by NASA to the Space (Stratosphere) via NASA's Columbia Scientific Balloon Facility. These samples will be tested with spectrographic methods to find changes in chemical compositions.
3. **Lava Tubes and Large gas blisters in the Deccan Traps' Lava flow in and Around Pune, India.** This study includes the documentation and analysis of various lava Tubes and large gas blisters in the Deccan Traps, along with the **two 65 million year old possible lava tubes** (and a few gas blisters) **discovered by Sonit.** Detailed mapping and various analyses are planned.

NATIONAL LEVEL ACHIEVEMENTS

1. Honored with **THE PRADHAN MANTRI RASHTRIYA BAL PURASKAR (THE NATIONAL CHILD AWARD FOR EXCEPTIONAL ACHIEVEMENT) - INDIA'S HIGHEST CIVILIAN HONOUR** bestowed upon exceptional achievers under the age of 18 by the Government of India, at the hands of the President. Sonit received this in scholastics section for his exceptional research work.
2. Won a **NATIONAL LEVEL GOLD MEDAL** at the **INSEF SCIENCE FAIR 2018**, for **RESEARCH ON THE EFFECTS OF SUB-SOIL INFRASONIC VIBRATIONS ON PLANTS** at the age of 11 years.
3. Won **NATIONAL LEVEL BRONZE MEDAL** at the **INSEF SCIENCE FAIR 2019**, for **RESEARCH ON PHONOTROPISM**

-the movement of plant roots towards the source of sound at the age of 12 years.

4. **PUBLISHED** a Science Article in the **NATIONAL SOUVENIR of the 24th NATIONAL CHILDREN'S SCIENCE CONGRESS – NCSC 2016**, at the age of 9 years. The article was titled – 'The Story of Solar Energy'.
5. Won the **1ST POSITION in the State of Maharashtra in the NAEST 2020** (National Anveshika Experimental Skill Test – 2020), i.e. **NATIONAL EXPERIMENTAL PHYSICS SKILLS COMPETITION** organized by the famous physicist Prof. Dr. H.C. Verma, **IIT** (Indian Institute of Technology, Kanpur) and **IAPT** (Indian Association of Physics Teachers). Sonit is among the top 36 from the 50,000 participants (up to MSc level) nationwide.
6. Placed in the **top 50 National Scorers List** (at the age of 9 years) of the **NATIONAL GREEN OLYMPIAD 2016** conducted by the Forest Departments of Maharashtra and Pune.

STATE LEVEL ACHIEVEMENTS

1. Won a **GOLD MEDAL (STATE LEVEL)** for his research at the **INSEF SCIENCE FAIR (Regional) 2017**, for research in the effects of sub-soil infrasonic vibrations on plants at the age of 10 years.
2. Won a **GOLD MEDAL (STATE LEVEL)** for his research at the **INSEF SCIENCE FAIR (Regional) 2018**, for research in the effects of sub-soil infrasonic vibrations on plants at the age of 11 years.

3. Honored with **'THE BEST SCIENTIST AWARD' (AT THE AGE OF 11 YEARS)**, which is usually given to the best **practicing scientists**, by the **Rotary club** of Pune, Shivajinagar in June 2018.

4. **WON (3RD PRIZE/SECOND RUNNER UP** at the age of 10 years) in the **'Young Explorers Inter-School Project Competition'** by Muktangan Science Exploratory, Pune. He had designed a **'BONE CONDUCTING HEARING AID'** for the people who cannot wear conventional hearing aids.

5. Won **1ST PRIZE AT THE SCIENCE PROJECT COMPETITION** by Science Park (**Savitribai Phule Pune University**) at the age of 13 years, for his model – **'IMPACT CRATERS: FORMATION AND THE EFFECTS ON VARIOUS PLANETARY BODIES OF THE SOLAR SYSTEM'**

6. **WON IN THE COMPETITION FOR GIFTED, MULTI-TALENTED CHILDREN – 'Bahurangi Bahar'** organized by **Institute of Psychological Health**, Thane. He was the **FINAL WINNER** from amongst 600 students from all over the state of Maharashtra, India. This competition was based on psychological assessments, communication skills, writing and interviews.

7. **Honored at World Environment Day** (for his research on plants; and for working for the environment) under **JIVIDHATA FESTIVAL 2018** by the **MINISTRY OF ENVIRONMENT FOREST AND CLIMATE CHANGE-GOVERNMENT of INDIA**

8. Achieved **'Proficiency Merit Certificate'** in the Science Talent Search Competition (**Dr. Homi Bhabha Balvaidnyanik Competition 2017-2018**) conducted by the **Greater Bombay Science Teachers' Association**

TRAINING / EDUCATION

1. **The Cancer Genome Atlas - Getting to Know the Enemy:** organised by Indian Institute of Science Education and Research (**IISER- Pune**), Exciting Science group and **CSIR-NCL** (Council of Scientific and Industrial Research-National Chemical Laboratory) on 23rd of September 2019.
2. **Workshop on Climate Change:** organized by Indian Institute of Science Education and Research (**IISER- Pune**), Exciting Science group and **CSIR-NCL** (Council of Scientific and Industrial Research-National Chemical Laboratory) on 15th and 16th May 2018.
3. **Certificate Course in Earth Science:** (2 months; 13th July to 17th October 2018) with field visits, conducted by **Jeevidha Education,** Pune.
4. **Basic Course in Practical Astronomy:** (1 month course with **practicals/field work**) conducted by **Jyotirvidya Parisanstha India's** (the oldest association of amateur astronomers in India), Pune from 28th April to 27th May 2019.
5. **'Understanding Evolution: In Biology and Beyond':** 5 days course conducted by Maharashtra Education Society's **Community College,** Pune.
6. **Archeology And History Workshop** organized by Department of AIHC and Archeology, **Deccan College Post-Graduate & Research Institute,** Pune on 10th August 2018.
7. **Writing About Science for Non-Scientific Audiences (College Level):** A 5 days practical course (7th to 11th of December 2020) organized by Indian Institute of Science Education and Research (**IISER- Pune**), Science Media Center, **Vigyan Prasar** and the **Department of Science and Technology, Government of India.**

8. **Creative Writing Course (College Level):** organized by **Internshala trainings** from 1st June, 2020 to 13th July, 2020. (7 weeks). The training consisted of getting started with creative writing, fiction, editing, non-fiction, screenplay and advertising and publishing modules.
9. **Geology Workshops/Lecture Series** (July/August 2020): Ladakh Ophiolites, Tectonic Evolution of the Aravalli Range and Landslides Along the Transportation Corridor in the Mountainous Regions of Northern India,; organized by the **Department of Geology, K J Somaiya College** of Science and Commerce; Mumbai, Maharashtra, India.
10. **Geology Workshops/Lecture Series** by the **Geological Society of India (GSI) Western Chapter:** Lectures by internationally renowned geo-scientists like Dr. Stephen Self, Dr. Jere Lips, Dr. Ian Steward and Dr. Hiromitsu Yamagishi.
11. **Intermediate Algebra (OpenStax):** (On-going) training/tutoring by **Quarantutors** from September 2020.
12. **Training in the Ancient Indian 'Modi' Script:** 1st to 12 June 2020.
13. **Tabla (Indian Percussion Musical Instrument) training:** Currently in Grade 5 of Tabla (Graduation occurs at Grade 7).
14. **AP Physics** – from Rice University on Edx
15. **Cambridge A level (year 12) mathematics** – from Imperial college of London on Edx
16. **A to Z of Minerals – Certificate course in Mineralogy** organized by the **Instucen Trust, Mumbai**. The course included: 1] Introduction to crystallography, 2]

Fundamentals of X-ray diffraction, 3] Mineral Groups, 4] Descriptive Mineralogy, 5] Paragenesis of minerals.

17. **Goldschmidt Conference 2021** - the foremost annual, international conference on geochemistry and related subjects, organized by the **European Association of Geochemistry** and the **Geochemical Society**.
18. **3rd Europlanet Early Career (EPEC) Annual Week 2021** - training school for early career scientists who work in the field of planetary/space science and engineering.
19. **European Geosciences Union: the 'Virtual EGU General Assembly 2021' (vEGU21)** - The conference consisted of all the topics and sub-branches of the earth sciences.
20. **Pearson Online Academy's 2021 Summer School program** – Chemistry A.

VOLUNTEERING AND LEADERSHIP

1. **Country Branch Manager of Quarantutors** – A not for-profit organization of high school students, where high school students across the world help other students across the world with one-on-one tutoring. This is especially aimed at **students whose education is affected by the COVID-19 pandemic**.
2. **Read a story - Volunteering in teaching English Language to Children in tribal areas** of India who lack spoken English skills due to lack of access to English education.
3. Member of the **African Planetarium Association (APA)**
4. **Co-moderated Young Science Leaders Talks** (date: 9th August 2020; 2 talks by – Dr. Jayprakash, and Dr. Purabi Saikia)

5. **Past Member of Pradnya Maitra (Gifted Club)** of Jnana Prabhodini Institute of Psychology, **Published** stories, innovative (inventions) ideas, and poems for their magazine Baal-Pradnya-Naad, 2017).
6. **'Our Earth' exhibition** (organized by Jeevidha Education): Volunteered and also presented fossils.
7. **Man and Stone - Geology Exhibition** (organized by **Jeevidha Education, Tilak Maharashtra Vidyapeeth [University] and Deccan College Post Graduate and Research Institute, Pune**): Volunteered and also presented his own collection of Rocks and Minerals at this exhibition from 11th to 14th of October 2018.
8. **Mountains and Man - Geography Exhibition** (organized by **Jeevidha Education**): Volunteered and also presented his own project model **"The Lava Flow Features in the Hills and Mountains of the Deccan Traps, India"**; October 2019.
9. **Active member of Vigyan Dal: A Science Club** by Jnana Prabodhini Prashala (school), Pune, Maharashtra, India.
10. **Online Exhibition / Covid-19 Pandemic Awareness and Education (September 2020)**: organized by Vigyan Dal Science Club; made a video presentation about the SIR mathematical Model of the Pandemic.
11. Participated in the **'Electron' Exhibition, Pune 2019** for popularizing the role of electron in daily life: organized by Vigyan Dal Science Club; Sonit had constructed an AM Transistor Radio.
12. **Member of Geo-Club**, Pune, India. This is a local club for the learning and popularizing Earth sciences.
13. **Founder of 'The Mechanics Group'**, an educational activity started on September 10th 2020, where like-minded high school students, passionate about Physics, **discuss challenging topics and conduct**

experiments related to mechanics. Currently, there are around 20 members in the group.

SPORTS and MUSIC

1. Received **3rd Prize (NATIONAL LEVEL) at the age of 9 years for Tabla** (Indian Percussion Music) Solo Performance in the GLOBAL HARMONY 2016 - ALL INDIA MULTILINGUAL DRAMA / DANCE / MUSIC - FEST – CONTEST organized by Akhil Bhartiya Sanskrutik Sangh (2016) at Pune.
2. **Received 2nd Prize (Cash) for Tabla** (Indian Percussion Musical Instrument) in Pandit Vishnu Digambar Paluskar Award Competition (2016) organized by Sharda Sangeet Vidyalaya, Mumbai, at the age of 9 years.
3. **Received 3rd Prize for Tabla Solo Performance** in AAMAD PRATISHTHAN TABLA COMPETITION, Mumbai, (2015) at the age of 8 years.
4. Selected as a **Child Radio Artist** for Tabla performance for Akashwani, Pune (local radio station under the Government of India).
5. **Skating** – won many medals at district level competitions.
6. Member of 'Nanded City Dal', a **local sports club** where teenagers play traditional outdoor physical sports.

SCHOOL LEVEL ACHIEVEMENTS

1. Won **2nd Prize** in **Advertisement Competition** on 30th November 2013

2. Won **2nd Prize in Declamation Competition** on 14th August 2015
3. Honored for **Excellence in Academics** in 2015 – 2016.
4. Won 3rd Prize in **Drawing Competition** on 30th November 2016.
5. Honored for **Outstanding Performance in Cultural Activities** in 2015 – 2016.

