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## Shiladitya DasSarma Papers

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The microbiologist and genomics researcher Shiladitya DasSarma, a UMass Amherst faculty member from 1986 to 2001, was born in Kolkata, India, in 1957. His father was a chemistry professor and his mother a high school English teacher; the family immigrated to the United States in 1966, shortly after the passage of the Hart-Celler Act of 1965, which opened U.S. immigration to Asians. His father joined the faculty of West Virginia State College, and young DasSarma attended public school nearby, graduating first in his high school class. His first scientific publications were with his father, in coordination chemistry, when he was a teenager. At Indiana University, DasSarma majored in chemistry, did research in DNA mapping and transposition, and graduated with honors in December 1978. In the biochemistry program at MIT, he worked as a National Science Foundation fellow under Nobel laureate HG Khorana and earned his PhD in 1984. After postdoctoral work at Harvard Medical School, DasSarma joined the department of microbiology at UMass Amherst. His research focused on the molecular biology and genetics of halophilic Archaea, building on pioneering work he had started as a graduate student. In his fifteen years at the university, DasSarma was busy with teaching, mentoring, research grants, publications, patents, launching the company HaloGenetics, and was promoted to full Professor. He made news with his group's work on the genome sequencing of the first halophilic Archaea and one of the first microbial genomes, in 2000. In 2001, DasSarma moved his research lab to the University of Maryland.

The Shiladitya DasSarma Papers document the life of a pioneering scientist from his childhood in India and West Virginia through his education and his UMass Amherst career. Consisting of correspondence, memorabilia, photographs, photograph albums, family scrapbooks, news clippings, publications, and material related to research and teaching, the papers also include materials from and about DasSarma's parents and family history and DasSarma's mother's compilation of Indian

folktales and stories.

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## Background on Shiladitya DasSarma

Shiladitya DasSarma, microbiologist and genomics researcher, was a faculty member at the University of Massachusetts Amherst from 1986 to 2001. He was born in Kolkata (Calcutta), India, in 1957. His father, Dr. Basudeb DasSarma, was a chemist in the Department of Pure Chemistry at Calcutta University and Chief Chemist of the Geological Survey of India. Seba DasSarma, his mother, was a high school English teacher. In 1966, his father became a faculty member of West Virginia State College's Department of Chemistry after the expansion of U.S. immigration to include non-Western and Northern European countries through the Immigration and Nationality Act of 1965.

DasSarma developed an interest in science from a very early age. He was the valedictorian of Dunbar High School's class of 1975. He took courses at West Virginia State College and conducted research alongside his father during high school, coauthoring his first publications with him on coordination chemistry as a teenager. DasSarma studied at the University of Rochester for a year after receiving a scholarship and the Bausch and Lomb science medal. In 1978 he graduated with honors in the chemistry department from Indiana University, where he had previously participated in a high school research program.

In the fall of 1979 he began his Ph.D. in the biochemistry program in MIT's department of biology, working with H. Gobind Khorana and Uttam L. RajBhandary. As a second-year graduate student, he received a National Science Foundation (NSF) graduate fellowship for his research on the molecular biology of halophilic (salt-loving) microorganisms in the Archaea. During his graduate studies, he published three papers in the Proceedings of the National Academy of Science USA.

As a postdoctoral researcher, DasSarma worked in the department of molecular biology at Massachusetts General Hospital, at Cold Spring Harbor Laboratory, and Harvard Medical School's department of genetics. He cloned cDNA for plant glutamine synthetase (GS) and expressed it in *E. coli* resulting in publications in *Science* and *Molecular and General Genetics*. He isolated a phosphinothricin (PPT) resistant GS gene mutation, which he patented, and researched at the Pasteur Institute to clone the gas vesicle protein gene *gvpA* from halophilic Archaea, which he published in *Molecular Microbiology*.

DasSarma was appointed to a tenure-track faculty position in the department of microbiology at UMass Amherst, where he returned to researching the molecular biology and genetics of halophilic Archaea. There he taught courses on genetics, genomics and computational biology. He received an NSF grant to research genetic variability in haloarchaea and a grant from the National Institutes of Health (NIH) on gene regulation in halophilic Archaea. He also established and directed a multi-user computer facility for the Five College Consortium, providing researchers with access to the NCBI DNA and protein databases, Blast service, and Genetics Computer Group software.

In the 1990s, DasSarma earned tenure and received NSF and NIH grants for the development of methods for cell flotation using buoyant gas vesicles, which he patented. Microscopist Lucy Yin and immunologists Bruce MacDonald and Elizabeth Stuart applied these nanoparticles for antigen display and vaccine development. This led to the creation of the company HaloGenetics with entrepreneurship professor Jim Theroux and postdoctoral associate John Halladay, on which DasSarma served as chief scientist. HaloGenetics and the DasSarma laboratory programmed *E. coli* to synthesize gas vesicles with support from an NSF Small Business Innovative Research grant. In 1998, he was promoted to Professor and served as Visiting Program Director at the NSF. He edited a multi-author work on halophiles entitled *Archaea-A Laboratory Manual* and developed MolGent, a molecular genetics computer tutor, in collaboration with Bev Woolf supported by NSF funding.

Notably, in 2000, he led the team that completed the genome sequencing of the first halophile--among the first of archaeal and microbial genomes. He collaborated with the University of Washington's Leroy Hood and Victor Ng, a former graduate student. The annotation work and bioinformatic tools developed by DasSarma's team were pivotal in the early stages of genomics. Twelve international laboratories formed the Halobacterium Genome Workshop for annotation. The sequence was the cover article in the Proceedings of the National Academy of Sciences USA.

Following his time at UMass Amherst, DasSarma served on the faculty of University of Maryland from 2001 to 2010. He taught in the Biotechnology Institute, Center for Marine Biotechnology, and the Life Sciences Graduate Program and is currently a professor of microbiology and immunology at the University of Maryland School of Medicine. He proposed the "Purple Earth" hypothesis, concerning photosynthetic life forms of early Earth, and is increasingly focusing his work on the environment, the climate crisis, and sustainability--work for which he has been recognized by the University of Maryland, Baltimore (UMB) Office of Sustainability, which named him a Sustainability Champion in April 2025.

DasSarma is married to Priya DasSarma, a microbiologist, halophile researcher, educator, and former manager of his lab. The two developed microbiology teaching kits utilizing *Halobacterium* sp NRC-1 for high school and college students. They have two children.

## Scope of collection

The Shiladitya DasSarma papers document the scientist's life and work from childhood through much of his academic and scientific career. This collection contains many of his father's own research and documents. Early school records from India and West Virginia, his mother's and wife's compilation of Indian folktales, photographs, and scrapbooks document DasSarma's youth. The papers contain extensive documentation of his microbiology research including lab notebooks, correspondence, newspapers, and publications from his undergraduate studies through his scientific breakthroughs at UMass Amherst. Of note are articles pertaining to DasSarma's team's completion of the genome sequence of *Halobacterium* species NRC-1 and his publication in *Science* volume 232.

## Series descriptions

### [Series 1. Personal and Family](#)

1932-2010  
3.38 boxes

This series is composed of documents, memorabilia, and photographs related to DasSarma's family and personal life, including materials from his father's education, training, and work in India and the United States and from Shiladitya DasSarma's own schooling and activities of his youth. Of note are scrapbooks compiled by DasSarma's mother, including materials related to the family's arrival in the U.S., and her book of Indian folktales, with illustrations by Priya DasSarma. Arrangement is alphabetical.

### [Series 2. Professional](#)

1974-2021  
6.62 boxes

This series covers DasSarma's career as a scientist, beginning with undergraduate research, graduate correspondence and research, and his doctoral thesis. It also includes materials related to his postdoctoral work and patents, and articles about his genomics research, which was covered extensively in the general press. DasSarma's publications are also included in both their original form and bound into collections. Arrangement is alphabetical save for publications, which are arranged chronologically.

## Inventory

Series 1. Personal and Family  
1932-2010  
3.38 boxes  
Amherst house building album  
1993  
Box 9: 1  
DasSarma family history--DasSarma, Dr. Basudeb, and colleagues, photographs and letters  
1953-1996  
Box 1: 1  
DasSarma family history--DasSarma, Dr. Basudeb, consumer chemistry teaching manual  
ca.1985  
Box 1: 2

DasSarma family history--DasSarma, Dr. Basudeb, education  
1940-1969  
Box 1: 3  
DasSarma family history--DasSarma, Dr. Basudeb, Journey of a Lifetime (memoir)  
2010  
Box 1: 4  
DasSarma family history--DasSarma, Dr. Basudeb, publications  
1949-2000  
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DasSarma family history--DasSarma, Seba, interview  
1966 Nov 1  
Box 1: 6  
DasSarma family history--DasSarma, Seba, Tales from a Faraway Land; illustrated by Priya DasSarma  
2006  
Box 1: 7  
DasSarma family history--DasSarma, Seba, scrapbook  
undated  
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DasSarma family history--DasSarma, Seba, scrapbook  
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undated  
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Early education--India  
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Early education--West Virginia  
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ca.1974-1975  
Box 1: 13  
High school--Awards and recognitions  
ca.1971-1975  
Box 8: 1  
High school--Dunbar High School  
1972-1975  
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High school--Dunbar High School folder  
1971-1975  
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High school--Indiana University High School Science Institute  
1974  
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High school--Indiana University High School Science Institute: Summaries of Student Research Participation  
1974  
Box 2: 2  
Professor DasSarma Laboratory Picture Gallery  
1984-2007  
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Undergraduate photographs  
ca.1974-1979  
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1974-2021  
6.62 boxes  
Undergraduate education--Awards and recognitions  
1975-1979  
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Undergraduate education--Indiana University  
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Undergraduate education--Lambda restriction maps notes  
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Box 2: 5  
Undergraduate education--Resume and job offers  
1978-1979  
Box 2: 6  
Undergraduate education--Thesis  
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Box 2: 7  
Undergraduate education--University of Rochester  
ca.1975-1976  
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Undergraduate education--West Virginia State College  
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Graduate education--Applications and acceptances  
1975-1979  
Box 2: 10  
Graduate education--Correspondence  
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Graduate education--Doctoral thesis, bound  
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Graduate education--Doctoral thesis preparation  
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Box 2: 13  
Graduate education--Lab reports  
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Graduate education--National Science Foundation  
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Graduate education--Preliminary exams

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Postdoctoral--Cold Spring Harbor Laboratory  
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Postdoctoral--Correspondence  
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Postdoctoral--Lab notebook right pocket  
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Postdoctoral--Massachusetts General Hospital  
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Postdoctoral--Search  
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New England Biolabs Catalog  
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Pasteur Institute  
1986-1987  
Box 3: 10  
Glutamine synthetase mutation patent  
1987 Feb 4  
Box 3: 11  
Glutamine synthetase mutation patent  
1990  
Box 3: 12  
Glutamine synthetase mutation patent Amendment and Response  
1990 Jan 10  
Box 3: 13  
Glutamine synthetase mutation patent correspondence  
1986-1987  
Box 3: 14  
Glutamine synthetase mutation patent correspondence  
1981-1991  
Box 3: 15  
Press--Archaea: A Laboratory Manual  
1995-2000  
Box 4: 1  
Press--Baltimore Sun  
2013 Mar 24  
Box 4: 2  
Press--Baltimore Sun, vol. 175, no. 176  
2012 Jun 24  
Box 10: 2  
Press--Baltimore Sun, vol. 181, no.300  
2018 Oct 27  
Box 10: 3  
Press--Campus Chronicle vol. 9, no. 4  
1993 Oct 2  
Box 4: 3  
Press--Campus Chronicle vol. 16, no. 6  
2000 Oct 6  
Box 4: 4  
Press--Circadian rhythms  
1998 Sep 7  
Box 4: 5  
Press--Climate change  
2018-2019  
Box 4: 6  
Press--Daily Hampshire Gazette vol. 215, no. 30  
2000 Oct 10  
Box 4: 7  
Press--Dallas Morning News  
1998 Oct 26  
Box 4: 8  
Press--Extreme halophiles  
ca.2002-2012  
Box 4: 9  
Press--Halobacterium genome sequence  
2000 Oct, 2018  
Box 4: 10  
Press--Halobacterium halobium  
1993-2019  
Box 4: 11  
Press--Halogenetics Inc  
1995-1996  
Box 4: 12  
Press--Hampshire Life  
1995 Mar 17-23  
Box 4: 13  
Press--Life on Mars  
ca.2006-2019  
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Press--Microbiology  
2000-2001  
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Press--Purple Earth  
2008-2021  
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Press--Vaccines  
2002-2020  
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Press--Washington Post, vol. 130, no. 294  
2007 Sep 25

Box 10: 4  
Publications--Proceedings of the National Academy of Sciences, vol. 80, no. 8  
1983 Apr  
Box 4: 18  
Publications--Proceedings of the National Academy of Sciences, vol. 81, no. 1  
1984 Jan  
Box 4: 19  
Publications--Science, vol. 232  
1985-1986  
Box 4: 20  
Publications--Mol Gen Genet, Volume 203  
1986  
Box 4: 21  
Publications--Molecular Microbiology, vol. 1, no. 3  
1987 Jun-Nov  
Box 4: 22  
Publications--Experientia, vol. 49, no. 6/7  
1993 Jul 5  
Box 5: 1  
Publications--Molecular Biology of Archaea  
1993 May 11-14  
Box 5: 2  
Publications--Archaea: A Laboratory Manual  
1995  
Box 5: 3  
Publications--Genome Research, vol. 8, no. 11  
1998 Sep-Nov  
Box 5: 4  
Publications--Proceedings of the National Academy of Sciences (PNAS), vol. 97, no. 22  
2000 Jul-Aug  
Box 5: 5  
Publications--Microbe, vol. 1, no. 3  
2006  
Box 5: 6  
Publications--American Scientist  
2007 Apr-Jun  
Box 5: 7  
Publications--Microbe, vol. 5, no. 3  
2010 Jan-Mar  
Box 5: 8  
Publications--Journal of Bacteriology, vol. 194, no. 20  
2012 Oct  
Box 5: 9  
Publications--Current Opinion in Microbiology, vol. 25  
2015 Jun  
Box 5: 10  
Publications--American Biology Teacher, vol. 78, no. 1  
2016 Jan  
Box 5: 11  
Publications--Current Opinion in Microbiology, vol. 43  
2018 Jun  
Box 5: 12  
Publications--Professor Shiladitya DasSarma: Collected Works, Volume I  
ca.1979-1995  
Box 6: 1  
Publications--Professor Shiladitya DasSarma: Collected Works, Volume II  
1996-2004  
Box 6: 2  
Publications--Professor Shiladitya DasSarma: Collected Works, Volume III  
2004-2007  
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Publications--Professor Shiladitya DasSarma: Collected Works, Volume IV  
2008-2011  
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Publications--Professor Shiladitya DasSarma: Collected Works, Volume V  
2011-2013  
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Publications--Professor Shiladitya DasSarma: Collected Works, Volume VI  
2014-2017  
Box 6: 4  
Publications--Professor Shiladitya DasSarma: Collected Works, Volume VII  
2017-2019  
Box 7: 3  
Publications--Professor Shiladitya DasSarma: Collected Works, Volume VIII  
2019-2020  
Box 7: 4

## Administrative information

### Access

The collection is open for research.

### Provenance

Gift of Shiladitya DasSarma, 2022.

### Processing Information

Processed by Melina Olivas, 2025.

### Related Material

The [Basudeb DasSarma Papers](#) are at the University of Illinois at Urbana-Champaign.

[When the Earth Was Purple](#), from PBS Eons, describes Shiladitya DasSarma's Purple Earth Hypothesis.

### Language:

English

### Language:

Bengali

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## Search terms

### Subjects

- Amherst (Mass.)
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- Immigrants
- Microbial genomics
- Molecular biologists
- Scientists
- University of Massachusetts Amherst--Faculty

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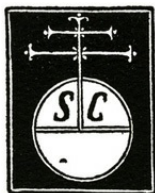
- DasSarma, Shiladitya [main entry]
- DasSarma, Priya
- DasSarma, Basudeb
- DasSarma, Seba

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- Scrapbooks

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