

UC Berkeley

Berkeley Scientific Journal

Title

Table of Contents

Permalink

<https://escholarship.org/uc/item/3cd0x1fm>

Journal

Berkeley Scientific Journal, 19(2)

ISSN

1097-0967

Authors

Li, Cheng
Wu, Jingting

Publication Date

2015

DOI

10.5070/BS3192028651

Copyright Information

Copyright 2015 by the author(s). All rights reserved unless otherwise indicated. Contact the author(s) for any necessary permissions. Learn more at <https://escholarship.org/terms>

Undergraduate

/fē'chors/

FEATURES

BSJ

W

a

s

t

e

Spring

2015

19(2)

DANGERS OF SPACE DEBRIS

Botao Peng

1

LIFE IN THE MILKY WAY: A GALACTIC GARBAGE CAN

James Pettingell

4

EATING DISORDERS: BODY WASTING AWAY

Shirley Shao

9

SOMETHING FOR NOTHING: SOLID-OXIDE FUEL CELLS

Karthik Gururangan

12

JUNK DNA

Neel Jani

15

DATA FRAGMENTATION

Nisha Balabhadra

18

TINY BUT TOXIC: HOW INDUSTRIAL WASTE INFILTRATES THE BODY

Rachel Lew

20

NUCLEAR WASTE: FOREVER CONTAMINATED?

Andrew Wang

24

TELOMERES HOLD THE KEY TO UNDERSTANDING AGING AND CANCER

Shruti Koti

27

BSJ

INTERVIEW:

A JOINT INTERVIEW WITH PROFESSOR JOONHONG AHN AND PROFESSOR CATHRYN CARSON ON NUCLEAR WASTE MANAGEMENT: A TECHNICAL AND SOCIAL PROBLEM

M. Gill, J. Kim, D. Miller, H. Chowdhary, K. Nuckolls, P. McGuinness

29

AN INTERVIEW WITH PROFESSOR ALEXANDRA VON MEIER ON AN EFFICIENT ELECTRIC GRID: IMPROVING VISIBILITY AND INTEGRATING RENEWABLE SOURCES

M. Gill, S. Patel, H. Chowdhary, D. Miller, P. McGuinness

36

AN AFTERNOON WITH PROFESSOR HERMANOWICZ: EXPLORING SUSTAINABILITY AND WATER FILTRATION

H. Chowdhary, L. Castro, P. McGuinness, J. Kim, S. Patel, K. Nuckolls, M. Gill.

42

RESEARCH:

TRANSPIRATION EFFECTS AND INQUILINES IN A LEPIDOPTERAN STEM GALL

Olivia Cope

49

C O N T A C T /kōn' tākt' /

MAILING ADDRESS *Berkeley Scientific Journal*
5 Durant Hall #2940
Berkeley, CA 94720-2940

PHONE NUMBER (510) 643-5374

EMAIL bsj.berkeley@gmail.com
ONLINE bsj.berkeley.edu

Dear Reader,

This issue of the Berkeley Scientific Journal revolves around “waste,” seemingly extemporaneous objects left over by nature or human activity. Admittedly, our theme is a bit of a misnomer. A running theme throughout this issue is objects once thought to be “waste” found under further analysis to be of great value. This issue highlights one of my favorite aspects of science, the way once held notions and ideas change as new information arises. Moreover, waste is an incredibly important subject in science today. Technological advances over the last century and a half have greatly improved the quality of life for many, but they also have waste byproducts that must be dealt with. Understanding waste is crucial to building a sustainable future.

Our latest issue combines features articles written by our staff, interviews with Cal professors, and top-quality research performed by undergraduate Cal students. On an interplanetary scale, we have an article looking at space debris left by humans [1], and the role stellar waste plays in human life [4]. Narrowing our focus to human life, we have an article on the body wasting away as a consequence of eating disorders [9], and an analysis on the function of “Junk DNA” [15], how industrial waste enters and affects the human body [22], and a look at telomeres, DNA sequences often tied to aging [29]. Finishing off we have a selection of articles analyzing technological uses of waste, beginning with a look at solid-oxide fuel cells [12], a piece on data fragmentation and how computers handle waste [18], and an article on nuclear power and its subsequent creation of waste [26].

For our interviews we first met simultaneously with Professor Ahn and Professor Carson to talk to them about the technical and social aspects of the problem of nuclear waste management [30]. Then we present Professor von Meier, who talks to us about renewable energy sources [36]. In our final interview, we hear from Professor Hermanowicz on sustainability and water filtration [44]. To conclude we have an excellent paper which highlights original research spearheaded by Cal undergraduate Olivia Cope. We thank you for your readership, and hope you enjoy our foray into the world of waste.

Go Bears!

Ali Palla
Editor-in-Chief

S T A F F /stāf/

Editor-in-Chief ALI PALLA

Managing Editor ERIC HUANG

Features Editors ADITYA LIMAYE
ALEXANDER POWERS
NITHYA LINGAMPALLI

and Writers ANDREW WANG
BOTAO PENG
GABRIEL FREEMAN
JAMES PETTINGELL
KARTHIK GURURANGAN
MELANIE SAKURADA
NEEL JANI
NISHA BALABHADRA
RACHEL LEW
SHIRLEY SHAO
SHRUTI KOTI

Interview Editors HARSHIKA CHOWDHARY
MANRAJ GILL

and Team AMY LYDEN
CLANCY LEE
DANIEL MILLER
JUWON KIM
KEVIN NUCKOLLS
LUIS CASTRO
PHILIPPA MCGUINNESS
SAAVAN PATEL

Layout Editors CHENG (KIM) LI
JINGTING WU

and Team ABIGAIL LANDERS
HENRY HAMMEL
JACOB ONGARO
KARTHIK MAYILRAHMANAN

Marketing Editor ALEXIS BOWEN

Research Editors GRACE DENG
MICHAEL LOOI

and Team GEORGE HE
KELSEY WONG
SAMAN ARAFAIE