

2015

UNIVERSITY SUMMER FORUM
Chemistry & Society

WITH **BASSAM Z. SHAKHASHIRI**

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UNIVERSITY OF WISCONSIN-MADISON



Wisconsin Initiative for
Science Literacy

SCIENCE IS FUN

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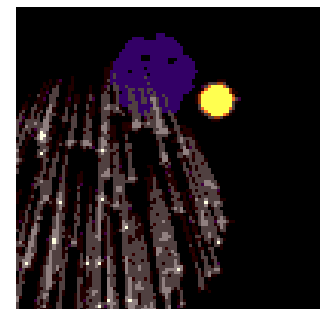


Wisconsin Initiative for
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CHEMISTRY OF
FIREWORKS



BASSAM Z. SHAKHASHIRI



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Sights and sounds are the result of several chemical reactions

Oxidations Reductions

Most commonly used oxidizers:
nitrates, chlorates, and perchlorates

Reducing agents, sulfur and carbon, combine with oxygen from oxidizers to produce the energy of the explosion





RED

strontium salts, lithium salts
lithium carbonate, Li_2CO_3 = red
strontium carbonate, SrCO_3 = bright red



ORANGE

calcium salts
calcium chloride, CaCl_2



YELLOW

sodium salts
sodium chloride, NaCl



GREEN

barium compounds + chlorine producer
barium chloride, BaCl_2



BLUE

copper compounds + chlorine producer
copper(I) chloride, CuCl



PURPLE

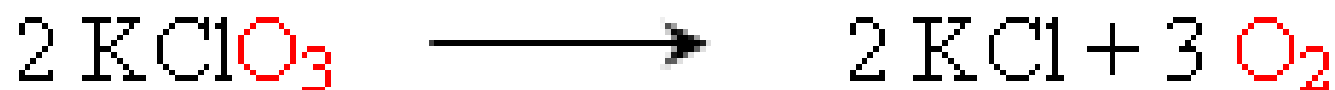
mixture of strontium (red) and
copper (blue) compounds

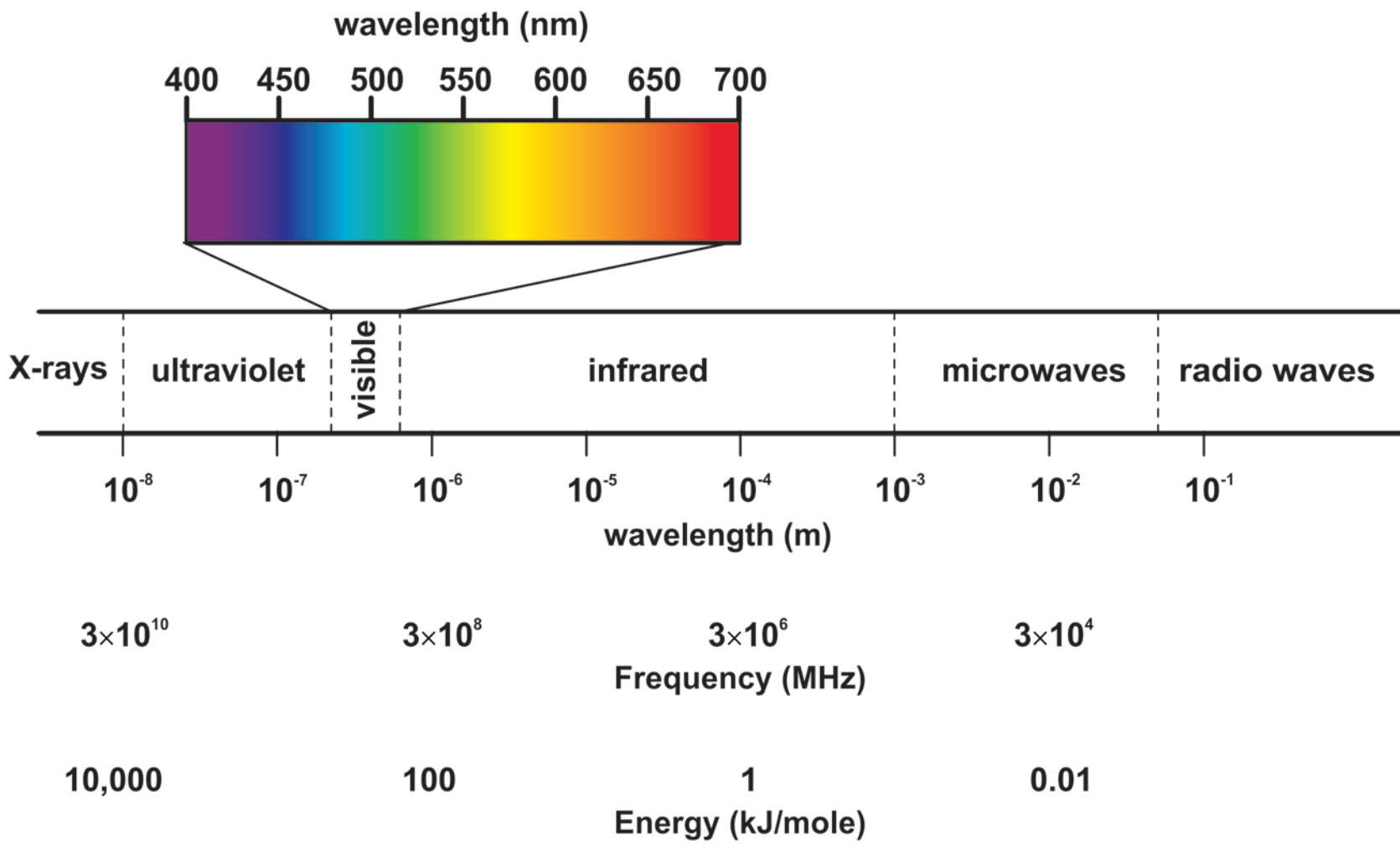


SILVER

burning aluminum, titanium, or magnesium







Grand Challenges to Society and to Scientists

Help sustain Earth and its people in the face of:

- Population Growth
- Finite Resources
- Malnutrition
- Spreading Disease
- Deadly Violence
- War
- Climate Change
- Denial of Basic Human Rights, *especially the right to benefit from scientific and technological progress*



The Strongest Forces in Society

Religion

Science



Two Arguments for Intelligent Design— Complex Adaptations and Fine-Tuning

ELLIOTT SOBER

HANS REICHENBACK PROFESSOR AND
WILLIAM F. VILAS RESEARCH PROFESSOR

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UW-MADISON COLLEGE OF LETTERS & SCIENCE

