



Double Bond

The Newsletter of the Western New York Section of the American Chemical Society

Volume 83

April 2011

2011 OUTSTANDING HIGH SCHOOL SCIENCE TEACHER OF THE YEAR

Please join us in recognizing
Mr. Ronald A. Stepien
of Buffalo Academy of the Sacred Heart
at our annual Education Awards Banquet

Thursday, April 28, 2011

Cash Bar 6:15 p.m.
Buffet Dinner 7:00 p.m.

Awards 7:30 p.m.
Outstanding High School Science Teacher
Chemistry Olympiad High Scorers
Outstanding College Seniors

The speaker this year will be

Monica Restorff, Ph.D.
of Greatbatch, Inc., whose address is entitled
Bats, Caps, & Lunch Money

Fairdale Banquet Center
672 Wehrle Dr.
Amherst, NY

Cost \$30, \$15 for students

**** RSVP by April 19, 2011 ****

Please send your reservation information to Alice
Steltermann (716-888-2340, stelster@canisius.edu).

2011 UNDERGRADUATE SYMPOSIUM

The 4th Annual Undergraduate Research Symposium is approaching fast. This year's Symposium will take place on Saturday, April 16, and is hosted by the University at Buffalo Department of Chemistry. The event will feature a keynote address by Prof. Timothy Swager from MIT, as well as talks and poster presentations by research students.

ASPARTAME: IS IT REALLY DEADLY?

Guest Editorial by
Prof. Ron Priefer, Niagara University

What is the truth about aspartame? Is this a deadly concoction that corporate America has thrust upon us without a concern of our health? Or is it a wonder molecule that helps consumers partake in the joys of the sweets without the ramification of the high sugar levels? Let us examine the actual molecule itself.

Aspartame is a dipeptide--two amino acids bonded together. Our body needs amino acids to survive. Just twenty different amino acid structures go into construction of every protein in our bodies. Aspartame is made up of two essential amino acids (phenylalanine and aspartic acid). When aspartame comes in contact with the sweet inducing receptors of our tongue, we perceive the sensation of sweetness. In fact aspartame is 160 times sweeter than sugar, meaning we need to have only a small amount of this molecule to obtain the same sweetness level as sugar. Did you ever wonder why a can of Diet Coke floats and regular Coke sinks in water? The large amount of sugar (which increases the density of the carbonated water mixture) means Coke is more dense and hence it sinks. The Diet version, with only a small amount of aspartame, has a density only a little different from that of water, so the can will float.

But what happens after the aspartame is washed off our tongue and down into our stomach? Similar to

2011 OUTSTANDING HIGH SCHOOL SCIENCE TEACHER OF THE YEAR (OSTY)

Mr. Ronald A. Stepien has taught in the Sacred Heart science department for nearly 25 years. He has developed a tremendous skill set as a classroom teacher and is an indispensable member of the school community. Referred to by the students as simply “Step,” he is well known for being accessible and making learning fun and interesting. His students can’t wait for his class. Whether it’s his memorizing techniques, including mnemonics, rhymes or silly stories, or his method of presenting labs in ways his students readily understand, Mr. Stepien presents courses that traditionally have been challenging for young women and makes them interesting, fun and highly learnable. He has taught courses including Regents Chemistry, Advanced Placement Chemistry, Regents Physics and Advanced Placement Physics, all with great success.

Mr. Stepien consistently demonstrates intelligence, confidence, and enthusiasm in his daily instruction. Furthermore, his lessons reflect conscientious planning, challenging expectations, and the latest technology. In addition, Mr. Stepien creates a comfortable learning environment by employing a variety of teaching strategies, using appropriate humor, and applies plausible examples. Not only has he been willing to assist his own students at any time, but he gladly would tutor other teacher’s students. When the Sacred Heart community needed a quick replacement for various physics classes with little time to spare, Mr. Stepien gladly volunteered his time to assist the students. Mr. Stepien’s confidence in the subject was contagious, and his students greatly benefitted from his positive attitude. His inviting personality quickly made him, by the students’ standards, “the best teacher ever.” Students eagerly awaited the start of the school year just because they had “Step” for a teacher.

In addition to his BS in education, Mr. Stepien also has an MS in education and a Masters in Educational Administration. In recent years he has also taken professional course work in subjects including reading across the curriculum, AP Chemistry, inquiry based learning and POGIL (Process Oriented Guided Inquiry Learning), a pedagogical method devised to teach process skills (such as collaboration and written expression).

He has acted as a mentor to newer science faculty members and as science department chair. He also coaches the Sacred Heart volleyball team and empowers the young women he teaches with the team skills he instills in his players.

WNY CHEMISTRY OLYMPIAD WINNERS

<i>Student</i>	<i>School</i>	<i>Teacher</i>
Evan Zhao	Clarence	Ms. Amy Herman
Enzo Benfanti	Clarence	Ms. Vincenza Ebel
Niahm Durfee	City Honors	Ms. Valerie Davis
Amber Kudla	North Tonawanda	Mr. Arthur Harack
Brendan Stubeusz	Kenmore West	Ms. Marilyn Drnevich
Michael Collins	St. Joseph’s C. I.	Mr. Matthew Hellerer
Ryan Roder	Orchard Park	Dr. Robert Rominger
Joshua Dempsey	St. Francis	Mr. Jason Cretacci

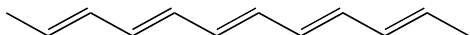
Olympiad High Scores Without AP Chemistry

Sarah Shafik	Buffalo Seminary	Ms. Christine Sands
Matt Gordon	City Honors	Ms. Valerie Davis

(aspartame, continued from page 5)

almost all consumables, aspartame is degraded into its simpler forms. Like a steak, which is degraded to liberate amino acids (the building blocks of proteins), fats, and carbohydrates (along with a slew of other things) which our body will use to survive; aspartame is degraded to its amino acid forms (phenylalanine and aspartic acid). As mentioned, these amino acids are “essential”, thus can they be bad? In excess, yes, but so are oxygen and water, and every other molecule in nature. Studies over the last 25 years have shown that an adult would need to consume 20 twelve-ounce diet beverages (or 97 packets of sweetener) to bring their aspartame level up to the FDA’s acceptable daily intake (ADI) value. That is almost 2 GALLONS of liquid. And it is not even at the danger level. Clearly, that is not the issue. One other molecule that is formed upon the degradation of aspartame that could cause problems is methanol; also known as wood alcohol. True, methanol does cause headaches, fatigue, nausea, visual impairment, convulsions, respiratory failure, and even death: IN EXCESS. Fruit juices have more than 2½ times the amount of methanol. With all the overwhelming evidence that has just been presented, I must state that there have been cases where aspartame has been shown to cause seizures. This however, has been attributed to allergic reactions, similar to certain individuals being allergic to garlic or peanuts (i.e. phenylketonuria).

On the internet, it is easy to find “evidence” that says that aspartame is evil. But in a scientific study performed at MIT, it was clearly shown that the common complaint about “symptoms” of aspartame ingestion was observed in the same frequency as with a control group taking a placebo. Although some individuals will inevitably have adverse effects and some will consume unsafe amounts, (how and why someone would is beyond me) clearly, aspartame is not bad. While it will be impossible to convince everyone out there, it is my hope that with clear scientific analysis, it will be possible to keep myths and fallacies from being passed around.



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