

Another September, the beginning of Fall.

Fall also brings us the 2016 presidential elections. Not a good choice to be seen.

We have the normal meetings planned on the second Tuesday of each month (Snuffies in Scotch Plains or Rolf's in Warren, NJ) with our executive committee meeting on the first Tuesday at Paisanos at Watchung Square Mall.

As usual we are looking for volunteers to help run the section. Please contact any officer or just show up at Paisanos. The New Year will see more joint meetings with North Jersey.

Reservations can be made by phone to 908-604-2670. Our email reservation is unchanged.

Who is this Howard Stamato?

He is a rodeo rider! Yes he is! He participated at an actual Rodeo event in Wyoming this year.

2016 Section Officers

Chairperson:

Jacqueline Sibbles

Chair-Elect:

Howard Stamato

Treasurer:

Patricia Forgang

Secretary:

Andrew Soos

Past Chair:

Chandra Nair

Directors:

Phil Messina

Laura Turci

Ken Carlson

David Greene

Yasha Zelmanovich

Rich Sarnie

Director Emeritus:

Frank Dittman



Rutgers Pharma Lab

In June we went to the Rutgers Pharma Lab. There were 16 of us. Douglas Hausner (Associate Director of the Engineering Research Center for structured Organic Particulate Systems) is the leader for this center and gave a brief lecture of the goals and objectives. The “lab” is a series of small rooms with analytical equipment and small scale operations. There are also a mid-size and full size pilot scale operations. The general intent is to show how powders are transported, mixed, processed and handled from raw inputs to the finished product (tablets).





NJ Lottery

In May Rge section met to hear about the NJ Lottery. (Nobody won) The New Jersey Lottery is run by the U.S. state of New Jersey. Its draw games are: Cash4Life, Mega Millions, Powerball, Pick-6, Jersey Cash 5, 5 Card Cash, Pick-4, and Pick-3. The Lottery also sells scratch tickets. The New Jersey Lottery is headquartered in the One Lawrence Park Complex in Lawrence Township, Mercer County. The largest prize won on a ticket sold in New Jersey was for the March 23, 2013 Powerball drawing. The annuity value of the ticket was approximately \$338,000,000.



The Great Global Warming Discussion

A simple radiant heat transfer model treats the earth as a single point and averages outgoing energy. This can be expanded vertically (radiative-convective models) and/or horizontally. This yields the T(emperature) equation:

$$T = \sqrt[4]{\frac{(1 - a)S}{4\epsilon\sigma}}$$

- S is the solar constant – the incoming solar radiation per unit area—about $1367 \text{ W}\cdot\text{m}^{-2}$
- a is the Earth's average albedo, measured to be 0.3
- σ is the Stefan-Boltzmann constant—approximately $5.67 \times 10^{-8} \text{ J}\cdot\text{K}^{-4}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$
- ϵ is the effective emissivity of earth, about 0.612

This yields an average earth temperature of 288 K (15 °C; 59 °F). This is because the above equation represents the effective *radiative* temperature of the Earth (including the clouds and atmosphere). The use of effective emissivity and albedo account for the greenhouse effect.



ANCIENT AVERAGE TEMPERATURES

Below is a rough average summary of these long ago times. This is from the Cambrian when complex life forms first appeared to now. In each time period, there will be fluctuations. Note the Jurassic period is not clear though it was generally warmer than now:

Time Period	Million Years Ago	Average Temperature (F)	Oxygen %	Average CO2 PPM
Now	0	59	20.9	400
Neogene	2.5 to 23	59	21.5	280
Paleogene	23 to 66	65	26	500
Cretaceous	66 to 145	63	30	1700
Jurassic	145 to 200	59+	-	>400
Triassic	200 to 250	63	16	1750
Permian	250 to 300	61	23	900
Carboniferous	300 to 360	59	33	800
Devonian	360 to 420	68	15	2200
Silurian	420 to 444	63	14	4500
Ordovician	444 to 485	61	13.5	4200
Cambrian	485 to 540	70	12.5	4500



JOKES!!!!?

Chemical engineers use packed beds and do it with strippers.

What can YOU do with forty feet of net positive suction head?

"Cuddling" is an inefficient heat exchange application.

Paul Erdos referred to children as "epsilons," but any decent chemical engineer would know that they're pilot plants.

Q: What's the difference between a chemist and a chemical engineer?

A: At least \$10k a year.

Q: What do you call what happens when the pre-meds hit their first thermodynamics class?

A: Mass transfer.

A chemical engineer's mid-life crisis plan is to quit their job and start doing process engineering on beer brewing for a living.

