



## MEETING TIME AND LOCATION

Thursday, September 14, 2006, network at 6:30, dinner (optional) at 7:00 PM, presentation at 8:00 PM.

Denny's Restaurant  
3315 N. Scottsdale Rd.  
Scottsdale, AZ

## PRESIDENT'S MESSAGE

by Vaughn Treude

### Pluto in the Doghouse

Recently there's been a big fuss about a small planet. When Pluto was discovered in 1930, it was so faint that scientists had to guess at its size. Most believed it was a dark object nearly the size of Mars. But the Hubble telescope showed that poor Pluto was actually a "bright" object smaller than Earth's moon. Many astronomers suggested it should lose its planetary status. Public sentiment, including impassioned letters from school children, kept Pluto in the list of nine.

But in the last few years, numerous bodies – many almost as large as Pluto – have been discovered in the region beyond Neptune known as the Kuiper Belt. In 2005, the discoverers of 2003 UB 313 proved that it

was larger than Pluto. This put the scientific world in a dilemma. If this new world, nicknamed "Xena", was not a planet, neither was Pluto.

Drawing the line between planet and planetoid (better known by the misleading term "asteroid") was no easy task. The International Astronomical Union met this year in Prague to consider the question. The first, obvious, criterion was that a planet orbits the Sun and not another planet. The second rule was clever – the object must be massive enough for gravity to force it into a nearly spherical shape. That includes Pluto but rules out the thousands of floating mountains in the "asteroid" belt. The list of planets would then have expanded to include Ceres (the largest planetoid between Mars and Jupiter), "Xena", and possibly another eight bodies, most of them in the Kuiper Belt. Pluto's moon Charon would also be promoted, because it is so big relative to Pluto that the two are considered a "double planet." But this scheme had a problem - the "planets" might eventually number in the hundreds as more Kuiper Belt objects were discovered.

At the last moment the IAU reversed itself and declared that there were only eight planets. Planetary rejects such as Pluto, would now be called "dwarf planets." This was due to a third rule, which states

that a planet must “clear its orbit” in space. Pluto fails this test because it crosses Neptune's orbit for 20 of its 248-year journey around the Sun. But what does “clear its orbit” mean? Neptune has not cleared its orbit of Pluto! There are a lot of small bodies crossing Earth's orbit as well.

I believe the IAU made the right decision for the wrong reason. The third rule has drawn a lot of fire from critics, because it is ridiculously vague. For the sake of science, it must be replaced! I'd like to suggest a few alternatives.

1. A major planet should orbit in or near the plane of the ecliptic, along with the other major planets. Pluto's orbit is inclined by 17 degrees, which implies that it formed elsewhere else and later displaced, possibly by Neptune.
2. A major planet should follow the Titius-Bode rule, which states that the distances of planets from the Sun increase by regular intervals. This fits Mercury through Uranus quite well. Oops, Neptune is 23% closer than it should be, and Pluto is actually close to where the 8<sup>th</sup> planet should be – no, we can't use this one!
3. A major planet should be the dominant body in its orbital zone. If any two cross orbits, the bigger one gets the title. Pluto is of course preempted by Neptune.
4. A major planet should not have an orbital resonance with a larger body. Pluto and many of its Kuiper Belt comrades are locked in a 3:2 resonance with Neptune. If the planetoid Cruithne, which resonates

with Earth, is “sort of” a moon of Earth, then Pluto is “sort of” a moon of Neptune.

Some of you may have noticed that these proposed rules would restore planetary status to Ceres, which was discovered in 1801 and demoted in the 1860's. It's even smaller than Pluto – but it's the biggest thing in the neighborhood.

In my humble opinion, three of these alternatives for Rule 3 are better than the one the IAU voted to adopt. And unlike Grigory Perelman, I will not refuse any prize money that any scholarly body chooses to award me. (Thanks to wikipedia.org, vectorsite.net, and nytimes.com for background info.)

Oh well, I've used up enough “space.” The upcoming September 14<sup>th</sup> PACN meeting covers a (regrettably) important topic, tax planning for small businesses. Hope to see you all at Denny's on the fourteenth.

Vaughn Treude

## **EDITOR'S MESSAGE**

**by Clark Jones**

As most of you know, I was away on a “road trip” most of last month. I enjoy cross-country drives (apparently, unlike many folks). You get to see many more than you do when you fly, such as the “wind farms” in west Texas. I'd been used to seeing these in California, not in Texas. You don't have to be locked into an exact schedule. You don't have to worry so much about how much “stuff” you drag along (or

how much you collect to bring home). And, as a big plus, you don't have to go through airport security!

Oh, and my favorite part: you have time to think.

One of the subjects that I gave some thought to was how I might go about getting hydrogen fuel “off the ground”. Clearly, the biggest problem with any “alternative fuel” is getting it accepted. You have a very big “chicken and egg” problem, in that no fuel distributor wants to put in additional “pumps” until there's a demonstrated demand for the product, and nobody is going to convert to the product until there's a “demonstrated availability”, i.e., a good distribution of pumps.

If we try to do this with “ordinary passenger cars”, it'll probably never happen, at least not without something that makes the Libertarians amongst us cringe: having a lot of government mandates (pronounced “interference”).

However, a thought occurred to me as I drove down the highway: semi tractors have lots of room for large fuel tanks, and operators of them are VERY interested in both lowered fuel costs and lowered maintenance costs. There are companies that operate fleets of these vehicles on a more-or-less “local” basis, which could prove interesting. If the supplier of an “alternative fuel”, say, for instance, hydrogen, were to go to one of these companies, preferably one that operated a few dozen trucks, and were to make the correct offer, it might well get accepted. What I would be inclined to do would be to offer to convert half the fleet to the new fuel, and install a “fueling station” at the subject company's yard. (The fuel tanks would have to be such that the range of the

trucks is at least the same as the existing diesels.) And then, for two years, the alternative fuel would be provided to the subject company at no (or at least, very low) cost, with the requirement that the subject company keep detailed records about both the fuel usage and maintenance costs of each of their trucks (both those running on alternative fuels and those operating on diesel). And, if successful, the subject company would agree to publicly releasing this data, and would also be part of a strategically placed marketing campaign by the supplier company. And just to give the subject company “warm fuzzies”, a trust fund would be established to provide conversion back to diesel if the experiment “fails”. It's a “no-lose” proposition for the subject company in the experiment. If the alternative fuel truly is as good as many of the proponents of hydrogen claim, then any company “making the switch” will be gaining a huge advantage over their competitors. The “small guys” will quickly demand publicly available pumps. Most of the truck stops today are operated by a handful of companies, and I suspect that they will be able to read the proverbial writing on the wall.

Anyway, there's my idea.

Oh, by the way, if you've never heard of Cruithne, don't feel bad – many astronomers don't know about it. It's Earth's “second moon”, with an orbital period (relative to the Earth) of about 770 years, and is about 3 miles across. Some would say that this actually puts it into a solar, rather than Earth, orbit.

I hope to see you on September 14<sup>th</sup> at the PACN meeting!

Clark Jones

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## **IEEE Phoenix Area Consultants Network September Meeting: Tax Strategies for Small Business Owners**

**Date:** Thursday, September 14, 2006

**Time:** Networking begins at 6:30 p.m.

Dinner begins at 7:00 p.m.

Program starts at 8:00 p.m.

**Place:** Denny's Restaurant

3315 N. Scottsdale Rd. (at Osborn)

Scottsdale, Arizona 85251

**Abstract:** Michael R. Oxford, President & Jeanne Seese, CPA of Oxford Retirement & Estate Planning will present a talk on tax strategies for small business owners. Their talk will also cover benefits and executive life planning for consultants and other small business owners.

Oxford has 25 years experience in estate planning and small business management. He is a small business owner and brings that perspective to his discussion. Seese received her CPA in 1994. She has prepared personal and business taxes since 1984.

For more information, contact Vaughn Treude, [vaughn@nakota-software.com](mailto:vaughn@nakota-software.com), or see the IEEE PACN website, [ieeepacn.com](http://ieeepacn.com).

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