

Plating NEWS

2018 Highlights

Spring/Summer 2018

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[3D Objects](#)

The 3D objects we've referred to in numerous Newsletter examples are cathodes, e.g. the parts we're plating. The 3D objects we touched on in the last Plating NEWS however and that which we shall discuss now are not cathodes. In fact, they're not even electrolytic. Early computer modeling research performed in the 1990's demonstrated that current flow patterns could be manipulated by placing non-electrolytic barriers between an anode and cathode. All the available current would eventually reach the cathode of course. It could be somewhat misdirected and almost muted to some cathode areas that would ordinarily receive much more current. Think overplating and then think about resolution of that overplating! How to do that?

The Smart Cathode Shields referred to in our published papers (see the Downloads Section on our website) have always been flat. Although not yet attempted to any great extent, we suspect flat shields could probably be bent to a curved shape. A good computer model could validate such a curved flat panel but we can't think of any reason why it would be needed if technology today can go beyond that.

Non-electrolytic, 3D Objects however can redirect current according to their shape, size and orientation to the plating fixtures and their cathodes. Early 3D object/plating shield experimentation was accomplished by hanging spheres directly in the current patterns. It was interesting seeing how the current flow was so manipulated. Spheres radiate somewhat uniformly when current is directed at them. Imagine what a myriad of 3D shaped objects could do to positively redirect current flow in a plating cell? We'll try to get to those in a future issue.

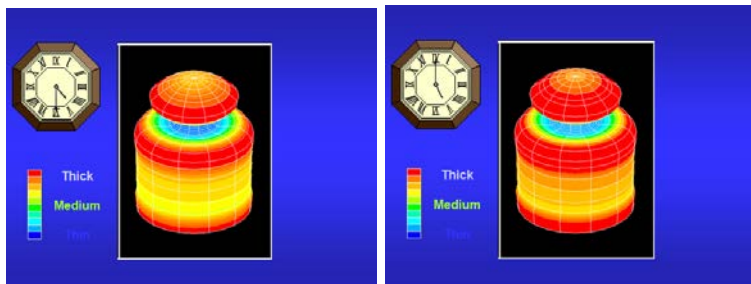
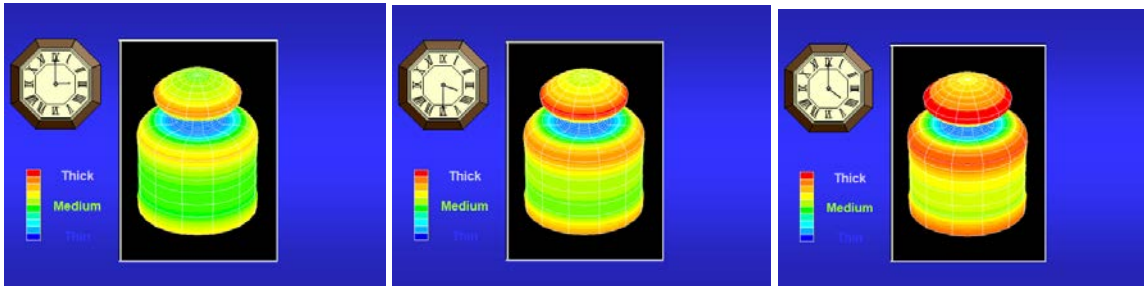
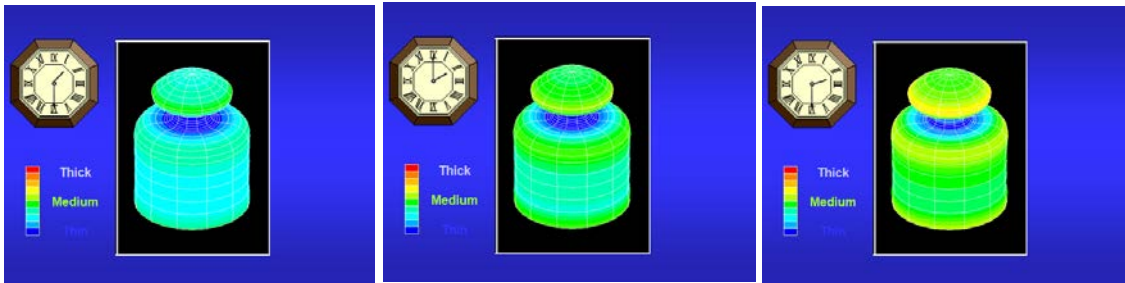
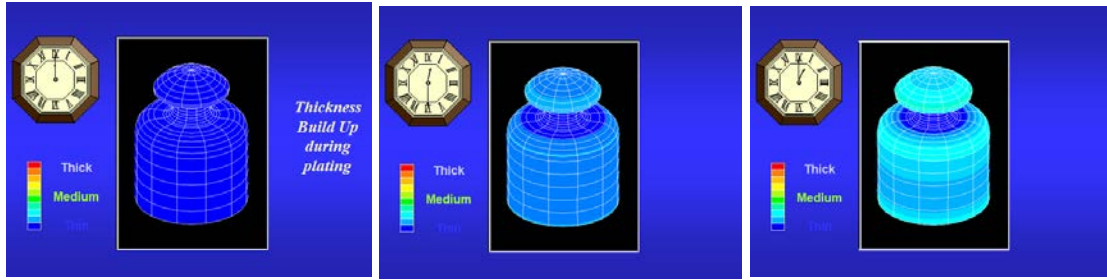
[Plating Thickness Build Up](#)

There have been requests to see the Plating Thickness Build Up Slides. They can be mesmerizing when they're run as active slides in a PowerPoint Slide Show. We apologize but the download of the file on the SmartCatShield website apparently doesn't go well for some. Since these are some of the most interesting slides we've ever seen depicting what physically happens during the plating process we share them with you again by request on the following page. And by the way, if anyone would like the actual PPS file we'll be glad to send it along.

A few notes:

- It's fun to watch plating thickness growth. The "show" slides plate fast.
- Pay no attention to the clock on the wall. In the "show" slides it advances half an hour at a time but is not meant to be accurate. It's just meant to note there is passage of time.
- This plating simulation model could be especially helpful to an engineer targeting a specific minimum thickness requirement. The display of this Electrochemical Intelligence would tell the engineer when it's "plating cycle over".

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NASF SURFIN Conference 2018

It was gratifying to see so many upbeat moods at SURFIN 2018 in Cleveland. It should be especially noted that most of the plating equipment builders were claiming to be busy. It's a good sign.

There were some well deserved Service Awards presented. In particular Mr. Jim Lindsay of NASF was recognized and honored. Jim has a long history in surface finishing in Detroit and with General Motors, beginning with the AES which then became the AESF.

Jim is quite noteworthy for another reason. He may or may not remember this but he saw to it, as a Technical Editor for Plating and Surface Finishing Magazine, that a paper presented at SURFIN Nashville, 2001 made it to print in the June 2002 Issue of Plating and Surface Finishing. "A New 3D Electroplating Simulation and Design Tool".

This paper presentation was voted "Best in Conference" but the noteworthy part is that it was the first paper published by P&SF with COLOR pictures. As Jim told this author, "presentation of the paper in our magazine begs for color". He made it happen. And most gratifying? It's still relevant and modern technology to this day.

In the SURFIN 2018 Technical Conference Presentations Elsyca delivered excellent insight into the benefits of using computer modeling and simulations in their presentations on the following topics:

Computer Aided Engineering for Mitigation of PCB Plating Processes, by Robrecht Belis, Elsyca Nv

Computer Aided Engineering for Optimizing the Electroforming Process of Abrasion Strips, by Bart Van Den Bossche, Elsyca Nv

WHAT DOES THE FUTURE HOLD?

We should all be acquiring better Electrochemical Intelligence. Intelligently configured flat shields, Smart Cathode Shields and now 3D Objects, properly placed in the anode to cathode electrical field, will be future state-of-the-art. As we said in our last issue, "If you got there without a computer model, then all the better for you!" It gratifies us to see adoption and use of plating shield technology on any level and by any means, including trial and error.

THANKS FOR READING

This edition of Plating NEWS has been written and edited by Roger Mouton and guest staff at Advanced Plating Technologies. We welcome submissions for publication in future issues of Plating NEWS.

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