CALIT2 4th Annual International Symposium on Technology in Medical Devices

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3D-Photoetching Process

1. **Raw Tube**
2. **Clean Tube**
3. **Photoresist Coating**
4. **Exposure**
5. **Develop**
6. **Inner Photoresist Coating**
7. **Etching**
8. **Removal/Cleaning**
There are a variety of applications, but the main focus at the moment are tubes. Kyosei has created many prototypes of stents and with the current manufacturing method being laser cutting, we hope 3D-photoetching will become an alternative option.

With the addition of a new lab located here at CALIT2, we are focused on improving and perfecting this technique. Moving forward we have seen success in creating longer tubes (up to 2 meters) and different materials. The current focus is to develop a consistent way to etch Nitinol.
<table>
<thead>
<tr>
<th>Advantages</th>
<th>Description</th>
<th>Enablers</th>
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<tbody>
<tr>
<td>Material</td>
<td>Stainless Steel *Developing NiTi</td>
<td>• Heatless procedure</td>
</tr>
<tr>
<td>Durability</td>
<td>Expected to be <strong>stronger</strong> than laser cut products</td>
<td>• Crack-less compared to heat affected zones in laser cutting</td>
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<tr>
<td>Integrity</td>
<td>High <strong>smoothness</strong></td>
<td>• No dross</td>
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<td></td>
<td></td>
<td>• No burr</td>
</tr>
<tr>
<td>Downsizing</td>
<td><strong>80 micron</strong> diameter tubes</td>
<td>• 3D-Etching</td>
</tr>
<tr>
<td>Cost</td>
<td>Expected to be more <strong>cost effective</strong> than laser cutting</td>
<td>• Can process more than 1 tube at a time</td>
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Thank you for your time.

ETCHING + ONE
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