



THE KNIT STITCH

From our President

by Patsy

My what changes we are seeing!!!

The Textile Center is closed for now. They hope to be open again by the time we have our next MMKC meeting. Stay tuned for further directions.

Please stay healthy and do whatever you need to do to keep your self and your loved ones well. If anyone needs anything, please call someone and we will do whatever we can to help you.

Our next meeting in April is our Annual meeting and we will be voting on new Board Members. Thank you so much to the current Board Members. Our group could not go on without your participation. And God's speed to the new Board Members. You are all such capable people and our group is in good hands.

Keep Casting On,
Patsy F
President

Elections in April

Below is the list of members willing to run for office. Anyone interested in any of the positions should contact Patsy (pafisk1947@gmail.com) to be added to the ballot.

President	Karen L
Vice-President	Elektra W
Treasurer	Gretchen F
Secretary	{open}
Member At Large	Linda M
Events	Cindy E

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Upcoming Events:

April 4: Field Trip to the Oleana exhibit at 1pm (\$5 fee)

Contact Patsy if you wish to be part of the group

April 14: MMKC

Elections and Garter Bar Presentation.

May 1-2: Purls of Joy

Contact Cindy Schmatz if you are interested:
cindyschmatz@gmail.com

May 12: MMKC

Beading on knits

May 23: Sock Blank

Workshop at RHF

Contact Jason if interested:
knitshop.rockinghorsefarm@gmail.com

Knitting With Wire

by Maria Ann

In February, Henry came and gave a talk about what and how he knits on machines with wire. It was amazing!

Before I begin, however, I am going to say there is no way I will be able to thoroughly described everything we were presented with. What follows is what I remember from the notes I took.

Henry works with nickel titanium wire. This is a special wire that has 'built in memory' - similar to yarn. The cool thing is that he can reset the memory of the wire so that it will knit together exactly as he wants it. He suggested we think of it as a spring that can be activated on command. This reset is done by physically constraining the wire into the shape he wants, then heating it to glowing hot, and then cooling it to set the memory.

The wire itself is black in color, which comes from the outside oxide layer that prevents exposure to the nickel. Henry felt that the potential for the amount that might leak out is very small. The wire can stretch between 0 and 8%. While stretching, the wire will feel warm, and while resetting into position it will feel cool. He uses computer aided design software and wire cutters when creating his projects.

To me, his most amazing project was the tire tread he knit for the Mars Rover. Row by row, he knit a long rectangle in seed stitch. Once the length was obtained he connected the 2 ends. He talked about the flexibility - using the example of rolling over a rock. As the tire got to the rock it would roll over it and encase it. But as the tire continued to move, it would then release the rock back into place, with no damage to the tread.

This wire and technique is also being used for medical purposes. He created a heart stent, which included some shaping. Braces and implants are another use this technology.

One of the benefits of working with this wire is that it is self contained and silent. He mentioned a pair of angel wings he helped create. They needed to be movable but also silent, as they were being used in a play. He also described a project he did with high school students. They shaped the wire, and then it was 'set' with electricity. What they took home, however, was a straight piece of wire. All they needed to do was heat it with a lighter and it would go back into the shape they had created.

Creative minds amaze me!

Henry Answers Questions

by Henry

Comments:

Henry's presentation was fascinating. His explanation of the wire properties showing its ability to stretch and snap back and the heat created was wild. His use of a knitting machine to create fabric for scientific use is a creative resolution to a problem that opens up many more possibilities.

It makes me happy to know that we have brilliant students from the U of M who are making a difference.

~Cindy

Knitting machines are being used to knit nickel titanium wire for industrial and medical applications. Tonight we had a presenter describe how he uses Taitexma/Brother knitting machines to knit wire that is being used for Mars rover and other projects. The future is here and knitting machines are a part of it

~Jason



What led you down the path you are now on?

I was always a tinkerer and enjoyed novel solutions to complicated problems, so when I learned about Julianna Abel's research in functional textiles, I knew I had to join her lab

Specifically, what led you to get into knitting with wire/metal?

I am in the Design of Active Materials and Structures Lab, so our whole focus is taking smart materials (materials with properties that change in reaction to external stimuli) and paring them with structures that can leverage their unique features. I work with NiTi, which is a Nickel-Titanium alloy famous for its shape memory effect and superelasticity, which allow the material to recover from deformations that would damage most other materials. We take that unique material and incorporate it into knitted structures, also known for their resilience, strength, and flexibility. You end up with an entirely new metamaterial that is more resilient than the material or structure alone

What do you see for the future of this technology?

This technology has potential applications in many areas, but aerospace and medical applications are the most immediate. Aerospace research is always looking for light, durable materials for building planes, and NiTi is 100% biocompatible, so it is already used in implanted devices. The research I'm doing is relatively fundamental, so I see it as expanding the material design space, adding more options for engineers than traditional materials alone

The Mars Rover seemed to be the most exciting application to several of us. Can you tell us more about the tire?

The diameter of the tire I made is 20in, but the size can be scaled. The curiosity rover has much larger wheels, but the one I built was designed for the smaller fetch rover, which collects samples to be returned to earth

How many tires did you knit?

I have only made one tire. NASA Glenn research center has made more prototypes using their interwoven NiTi spring design and even put it on a jeep

Since you were with us, what has been your latest project?

My latest work is studying the interactions between loops in a garter textile. More specifically, I'm investigating the effect that an out of plane thickness in the loop has on the Poisson's ratio of the textile. At this point, I have been able to design textiles with specified Poisson's ratios above and below zero, meaning that when the textile stretches vertically, I can control whether it contracts or grows laterally

Gnome Fun:

Gnome Ornaments
by Maria Ann

Machine: Standard
Yarn: I Love This Yarn! 6 colors
Gauge: not important

Ten 7
cast on with weaving method, 25
stitches
knit 10 rows in pant color
knit 2 rows in belt color
decrease 1 stitch each edge
RC000 knit 8 rows shirt color,
adding beard at row 4 in center

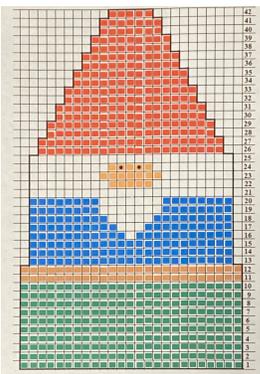
beard:
row 8 - 7 stitches
row 7 - 7 stitches
row 6 - 5 stitches
row 5 - 3 stitches
row 4 - 1 stitch

RC000 knit 5 rows beard color,
adding face at row 2 in center

face:
row 5 - solid hair color
row 4 - 5 stitches
row 3 - 7 stitches
row 2 - 5 stitches

decrease 1 stitch each edge, and
then EOR 7 times while
knitting 17 rows in hat color (on
16th row decrease 1 stitch each
edge). you should end with 5
stitches left to gather off.

sew seam. stuff. gather bottom.
add ribbon for hanging. draw
eyes with fine tip sharpie.



The Gnome Report

by Membership

There has been discussion about the State Fair and members all knitting the same item for entry in 2020. At the March meeting, those of us in attendance, decided we would like to have that project be a Gnome. This is the link for the gnome pattern Linda M shared in November:

<https://www.ravelry.com/patterns/library/christmas-gnome-12>

If you participate, you will be knitting for the Toy category. If you would rather enter a different category, feel free to let your creative juices flow with this theme.

Other suggestions: "Gnome on a Stick", mittens, scarf, sweater with Gnome motif, ... etc

When I typed 'gnome' into the pattern search box on Ravelry, there were 11 pages! Below are some just from page 1 - do your own search and get some ideas for what you might like to knit.

<https://www.ravelry.com/patterns/library/gnome-mittens-4>
<https://www.ravelry.com/patterns/library/gnome-baby-with-vest>
<https://www.ravelry.com/patterns/library/gnome-mittens-4>
<https://www.ravelry.com/patterns/library/scandi-gnome-ornaments>
<https://www.ravelry.com/patterns/library/gnome-or-santa-or-hawks>
<https://www.ravelry.com/patterns/library/smallest-gnome>

