Demonstrators & Panelists

- **Strategies for Earning an Income Turning Wood**
  Panel discussion.

Dave Long
- **Artists and Collectors**
  Panel discussion.

Bill Luce
- **xxtitle**
  xxwriteup

Robert Lyon
- **Turning in the 21st Century. Where do we go from here?**
  Emerging artist.

Jon Magill
- **Demystifying the Rose Engine Lathe**
  Jon will demonstrate a variety of techniques used in ornamental turning (OT) on a rose engine lathe. This session is primarily for those who have already tried their hand with a rose engine — newbies may find some aspects of this session confusing. The goal is to help everyone move up the complex ladder of skills required to master rose engine turning and incorporate OT into your turning repertoire. We will cover settings and set-ups that will exemplify the range of possibilities and patterns using the lathe, as well as insights into using assorted OT chucks and cutting frames.

Mike Mahoney
- **xxtitle**
  xxwriteup

Terry Martin
- **25 Years of Bad Wood Art**
  Panel discussion.

Arthur & Jane Mason
- **Artist ⇆ Collector**
  Panel discussion

James McClure
- **Fundamentals of Bowl Turning**
  James will demonstrate how to use and sharpen a bowl gouge, offering two preferred grinds. Learn the primary cuts of the gouge and how the different grinds are complementary to each other. While turning an open flat rimmed bowl, he will discuss when, why, and how each cut should be used to quickly and efficiently turn a bowl with a cleanly cut surface that will reduce sanding.
- **Turning Unusual Shapes**
  James will present strategies and techniques for turning more challenging shaped bowls, such as teardrop shapes, bowls with round bottoms, bowls with thin walls, and bowls that are taller than they are wide. He will demonstrate the use of the bowl gouge while turning a calabash-inspired bowl.

Ken Nelson
- **xxtitle**
  xxwriteup

Dale Nish
- **Birdhouse Ornaments**
  Learn how to plan, prepare, and design birdhouse ornaments. Topics covered will be tool techniques and assembly of parts for creating a unique and treasured gift.
- **Working Wet Wood**
  Dale will show the basics of natural-edge turning, from wood selection and mounting, to tool selection and use, design, sanding, and finishing.
- **Natural-edge Bowls**
  From a half-log of wet wood, Dale will turn and finish a bowl.

David Nittmann
- **Self-Critique**
  Panel discussion.

Ron Odegaard
- **Spindle Repair & Reproduction**
  Learn how to repair a broken chair spindle so it is as strong or stronger than the original, using a lathe and accessories most turners already have in their arsenal. Make these repairs for friends, neighbors, relatives, and profit. Get organized to reproduce multiple spindles for architectural restoration.

Jennifer Komar Olivarez
- **Turning to the Future**
  Panel discussion.

Bill Ooms
- **Patterns & Recipes for Rose Engines**
  How are all those pretty patterns made by a Rose Engine? That was Bill's question after building his first machine. This session will explain in detail how simple rosettes can be used to make stunning patterns on turned wood objects. In addition to a recipe book of patterns, the attendees will gain an understanding on how to make their own creative patterns with a Rose Engine lathe.

Pascal Oudet
- **French Dentelles**
  Pascal will show he makes his transparent pieces, by turning thin disks from green wood. The methods he uses can be applied to any thin turning. He will cover some basics about sandblasting technique and equipment.

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Bill Ooms

Bill was raised on a farm south of Chicago. Wood has always been a part of his life. As a second-generation woodturner, he learned basic woodworking techniques from his father. Even as a young man, his desire was to envision and create new things. This led him to his first career in engineering, and now he has returned to his roots as a full-time woodworker.

Much of Bill's early wood work was turning hollow vases inspired by the pottery of Native Americans in the Southwest. Later, he combined his woodturning skills with his math and engineering background to create unique wood sculptures. Most recently, Bill has designed and built a complex and unique ornamental lathe to create highly decorated objects of wood art.

Bill and his wife, Pam, have their home and studio in the country north of Prescott AZ, overlooking the Williamson Valley.

Wood is a unique medium for an artist – it was once a living thing of beauty. A wood artist has the opportunity to transform wood into something different that will continue to have beauty long after the tree has died and last for generations to come.

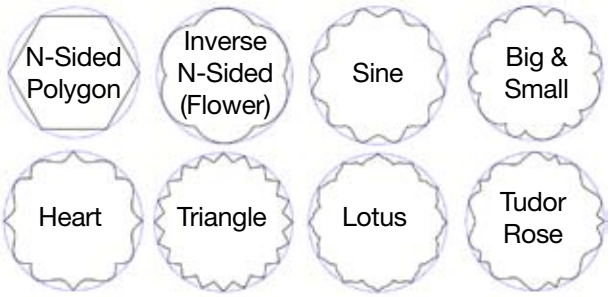
The lathe is used as a carving tool. The overall shaping is accomplished with handheld chisels. The goal is to create curves and shapes that are as pleasing to touch as pleasant to see. Decoration often requires more complex machinery in the form of an ornamental lathe. The artist determines the patterns and the location of each cut. Each piece is a unique combination of the natural wood and the touch of the artist's tools.

All work is done completely by the artist, from the selection of the wood, the drying process, the shaping and hollowing, decoration, and the sanding and finishing. Most pieces are finished using an oil finish and/or natural waxes to preserve the warm feel of the wood.

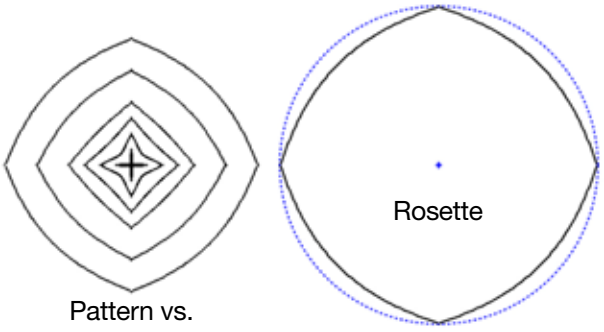
Some of the wood is gathered from local tree removal services or from storm-damaged trees. Some wood is obtained from other woodworkers in various parts of the country or purchased from wood suppliers who can certify that no endangered species are used. All wood is kiln dried to ensure stability.

Patterns for Rose Engines

How are all those pretty patterns made by a Rose Engine? The many shapes of simple rosettes can make stunning patterns on turned wood objects. Rosettes are specified by the pattern, the number of repeats around the circumference (i.e., number of bumps), and the peak-to-peak amplitude (i.e., the height of the bumps).

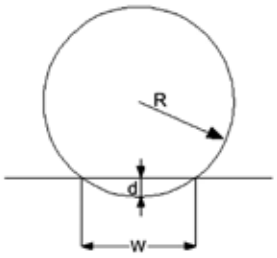


The pattern cut on the wood depends on the position. For example, when cutting on the lid of a round box with a 4-sided rosette, the pattern will depend on how far the cutter is from the center of the lid. The next figure shows this effect by mounting a pen in place of the cutter and drawing the pattern on an index card in place of the wood.



Pattern vs. Position

When cutting, it's very important to know the width of the cut you will be making. This is a function of the radius of your cutter and the depth of the cut. This is best calculated using a spreadsheet.



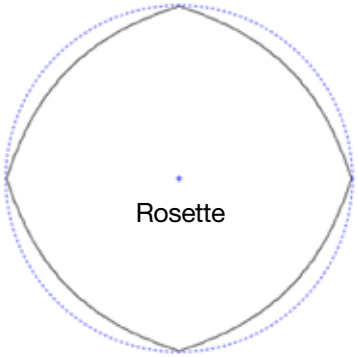
$$W = 2 \cdot R \cdot \sqrt{1 - \left(1 - \frac{d}{R}\right)^2}$$

$$d = R \cdot \left(1 - \sqrt{1 - \left(\frac{W}{2 \cdot R}\right)^2}\right)$$

For example, when making a cut on the top of a box, you want the first cut to just touch the center. For the next cut, move the cutter over by the width of the cut. If you move it further, you will end up with flat spots that haven't been cut. If you move it too little, you'll reduce the depth of the prior cut (generally not desired). As an example, my cutter has a radius of 0.5". If I make cuts 0.025" deep, the width will be 0.312" deep, so I'll move the cutter by 0.312" with the cross-slide to make each successive cut as shown in the "Heart4" pattern.

Cutting on the opposite side (going back away from the center instead of in front of the center) causes an pattern that is the inverse of the rosette. For example, using the "Plain-4" MDF rosette, you can get either a 4-sided pattern or a flower pattern. Alternately, one can use a rubber on the back side of the rosette.

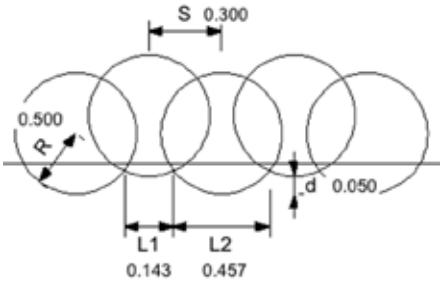
Black - cut in front
Red - cut in back



Changing the phase of a cut pattern is useful to create spiraling effects. For example, you can change the phase of each cut by 45 degrees (i.e., 1/8 of the pattern) to make the "Spiral1" pattern.

Cutting on the side of a cylindrical box will make completely different patterns with the same rosettes. For example, the "Sine-24" MDF rosette can be used to make an attractive "Netting" pattern. Each successive cut is moved by 1/2 the cut width, and alternate between 0 and 180 degrees phase shift (i.e., 1/2 of the pattern).

Changing the spacing can cause dramatic changes in the appearance as shown in the "Netting2" pattern. Calculate the dimensions from the formula shown in the next figure implemented in a spreadsheet.

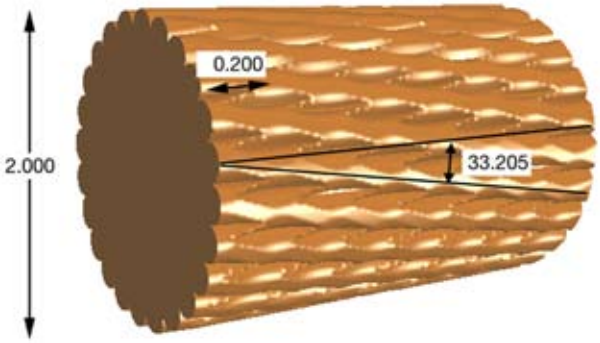


$$L1 = 2 \cdot R \cdot \cos\left(\operatorname{atan}\left(\frac{d}{S}\right) + \operatorname{acos}\left(\frac{\sqrt{S^2+d^2}}{2 \cdot R}\right)\right)$$
$$L2 = 2 \cdot S - L1$$

A Universal Cutting Frame (UCF) can be rotated to any angle. This is needed to make the "Rope" pattern and similar spirals. The amount of cutter rotation can be calculated.

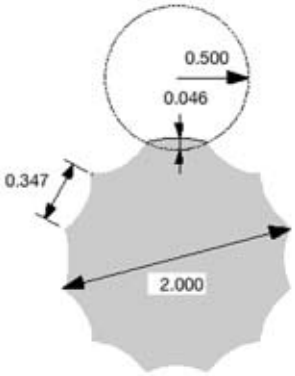
Diameter D=	2.000
Step Distance s=	0.200
Repeats per Rotation N=	12
Phase change per step p=	90

$$33.205 = \operatorname{atan}\left(\frac{p}{360} \cdot \frac{\pi \cdot D}{N \cdot s}\right)$$



The "Basket" and "Bamboo" patterns are made by turning the UCF cutter completely vertical and using a flat cutter or concave cutter respectively. Although you could use a rosette to make these patterns, it's often more convenient to use simple indexing. The math is a bit more complex (I'll email a spreadsheet shown in the next figure to anyone requesting it).

Number of cuts	18
Diameter	2.000
Cutter R	0.500
Radius	1.000
Angle/2	10.000
Circumference	6.283
L	0.347
delta d	0.015
Cut Depth	0.046



Pumping motion (movement along the axis of the lathe rather than radial motion) causes completely different cuts from a given rosette pattern. (See the "Rose," "Spiral," and "Wave" patterns.)

Depending on the ornamental lathe, you can combine both rocking and pumping motions simultaneously. When you use different repeats of a pattern on the rocking and pumping rosettes (or even different styles of patterns), you can come up with some very unique designs (see the "Cobblestone" pattern).

Don't be afraid to try new things in the pursuit of new designs. Make the ornamentation fit the artwork (not the other way around). Be creative and share your discoveries.

Recipes

MDF1
Cutter: HCF
Cutter Radius: 0.500

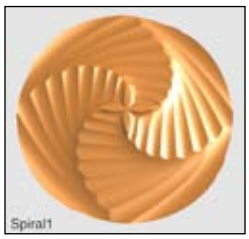
X	Z	Depth		Rosette	Amp	Phase
0.210	0.000	0.025	Rock	SINE 24	0.050	180.0
0.570	0.000	0.040	Rock	NSIDE 4	0.250	0.0
0.680	0.000	0.025	Rock	SINE 24	0.050	180.0

MULTIPLE
Cutter: HCF
Cutter Radius: 0.500

X	Z	Depth		Rosette	Amp	Phase
0.390	0.000	0.020	Rock	NSIDE 4	0.250	0.0
0.390	0.000	0.020	Rock	NSIDE 4	0.250	180.0
0.685	0.000	0.020	Rock	NSIDE 4	0.250	0.0
0.685	0.000	0.020	Rock	NSIDE 4	0.250	180.0

HEART4
Cutter: HCF
Cutter Radius: 0.500

X	Z	Depth		Rosette	Amp	Phase
0.255	0.000	0.025	Rock	HEART 4	0.100	0.0
0.565	0.000	0.025	Rock	HEART 4	0.100	0.0
0.875	0.000	0.025	Rock	HEART 4	0.100	0.0



SPIRAL1
Cutter: HCF
Cutter Radius: 0.500

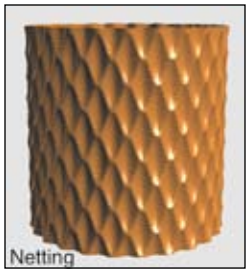
X	Z	Depth		Rosette	Amp	Phase
0.400	0.000	0.020	Rock	NSIDE 4	0.250	0.0
0.500	0.000	0.030	Rock	NSIDE 4	0.250	45.0
0.600	0.000	0.040	Rock	NSIDE 4	0.250	90.0
0.700	0.000	0.050	Rock	NSIDE 4	0.250	135.0
0.800	0.000	0.060	Rock	NSIDE 4	0.250	180.0
0.900	0.000	0.070	Rock	NSIDE 4	0.250	225.0
1.000	0.000	0.080	Rock	NSIDE 4	0.250	270.0

etc.

NETTING4
Cutter: HCF
Cutter Radius: 0.500

X	Z	Depth		Rosette	Amp	Phase
1.500	0.000	0.060	Rock	NSIDE 24	0.050	0.0
1.500	0.300	0.060	Rock	NSIDE 24	0.050	180.0
1.500	0.600	0.060	Rock	NSIDE 24	0.050	0.0
1.500	0.900	0.060	Rock	NSIDE 24	0.050	180.0
1.500	1.200	0.060	Rock	NSIDE 24	0.050	0.0
1.500	1.500	0.060	Rock	NSIDE 24	0.050	180.0

etc.



NETTING
Cutter: HCF
Cutter Radius: 0.500

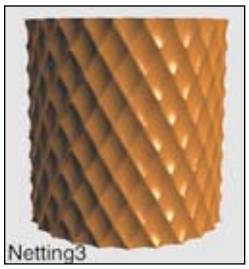
X	Z	Depth		Rosette	Amp	Phase
1.500	0.000	0.055	Rock	SINE 24	0.050	0.0
1.500	0.218	0.055	Rock	SINE 24	0.050	180.0
1.500	0.436	0.055	Rock	SINE 24	0.050	0.0
1.500	0.654	0.055	Rock	SINE 24	0.050	180.0
1.500	0.872	0.055	Rock	SINE 24	0.050	0.0
1.500	1.090	0.055	Rock	SINE 24	0.050	180.0
1.500	1.308	0.055	Rock	SINE 24	0.050	0.0
1.500	1.526	0.055	Rock	SINE 24	0.050	180.0

etc.

NETTING2
Cutter: HCF
Cutter Radius: 0.500

X	Z	Depth		Rosette	Amp	Phase
1.500	0.000	0.055	Rock	SINE 24	0.050	0.0
1.500	0.218	0.055	Rock	SINE 24	0.050	180.0
1.500	0.436	0.055	Rock	SINE 24	0.050	0.0
1.500	0.654	0.055	Rock	SINE 24	0.050	180.0
1.500	0.872	0.055	Rock	SINE 24	0.050	0.0
1.500	1.090	0.055	Rock	SINE 24	0.050	180.0
1.500	1.308	0.055	Rock	SINE 24	0.050	0.0
1.500	1.526	0.055	Rock	SINE 24	0.050	180.0

etc.



NETTING3
Cutter: HCF
Cutter Radius: 0.500

X	Z	Depth		Rosette	Amp	Phase
1.500	0.000	0.055	Rock	NSIDE 24	0.050	0.0
1.500	0.218	0.055	Rock	NSIDE 24	0.050	180.0
1.500	0.436	0.055	Rock	NSIDE 24	0.050	0.0
1.500	0.654	0.055	Rock	NSIDE 24	0.050	180.0
1.500	0.872	0.055	Rock	NSIDE 24	0.050	0.0
1.500	1.090	0.055	Rock	NSIDE 24	0.050	180.0
1.500	1.308	0.055	Rock	NSIDE 24	0.050	0.0

etc.

COBBLESTONE
Cutter: HCF
Cutter Radius: 0.500

X	Z	Depth		Rosette	Amp	Phase
1.500	0.150	0.050	Rock	NSIDE 16	0.050	0.0
			Pump	SINE 8	0.250	45.0
1.500	0.550	0.050	Rock	NSIDE 16	0.050	180.0
			Pump	SINE 8	0.250	45.0
1.500	0.950	0.050	Rock	NSIDE 16	0.050	0.0
			Pump	SINE 8	0.250	45.0
1.500	1.350	0.050	Rock	NSIDE 16	0.050	180.0
			Pump	SINE 8	0.250	45.0
1.500	1.750	0.050	Rock	NSIDE 16	0.050	0.0
			Pump	SINE 8	0.250	45.0

etc.

ROPE
Cutter: UCF, rotate 33.2°
Cutter Radius: 0.500

X	Z	Depth		Rosette	Amp	Phase
1.500	0.000	0.110	Rock	FLOWER 12	0.100	0.0
1.500	0.200	0.110	Rock	FLOWER 12	0.100	90.0
1.500	0.400	0.110	Rock	FLOWER 12	0.100	180.0
1.500	0.600	0.110	Rock	FLOWER 12	0.100	270.0
1.500	0.800	0.110	Rock	FLOWER 12	0.100	0.0
1.500	1.000	0.110	Rock	FLOWER 12	0.100	90.0
1.500	1.200	0.110	Rock	FLOWER 12	0.100	180.0

etc.

BASKET2
Cutter: UCF, rotate 90°, flat cutter
Cutter Radius: 0.500

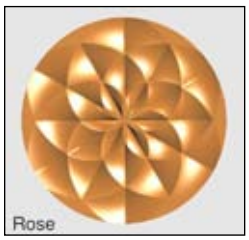
X	Z	Depth	Rosette	Amp	Phase
1.500	0.093	0.046	INDEX_X 18		0.0
1.500	0.280	0.046	INDEX_X 18		180.0
1.500	0.468	0.046	INDEX_X 18		0.0
1.500	0.656	0.046	INDEX_X 18		180.0
1.500	0.843	0.046	INDEX_X 18		0.0
1.500	1.030	0.046	INDEX_X 18		180.0
1.500	1.218	0.046	INDEX_X 18		0.0
1.500	1.406	0.046	INDEX_X 18		180.0

etc.

BAMBOO
Cutter: UCF, rotate 90 degrees, concave cutter
Cutter Radius: 0.500

X	Z	Depth		Rosette	Amp	Phase
1.500	0.093	0.140		INDEX_X 18		0.0
1.500	0.280	0.140		INDEX_X 18		180.0
1.500	0.468	0.140		INDEX_X 18		0.0
1.500	0.656	0.140		INDEX_X 18		180.0
1.500	0.843	0.140		INDEX_X 18		0.0
1.500	1.030	0.140		INDEX_X 18		180.0
1.500	1.218	0.140		INDEX_X 18		0.0
1.500	1.406	0.140		INDEX_X 18		180.0

etc.



ROSE
Cutter: HCF
Cutter Radius: 0.500

X	Z	Depth		Rosette	Amp	Phase
0.215	0.000	0.050	Pump	NSIDE 6	0.050	0.0
0.430	0.000	0.050	Pump	NSIDE 6	0.050	180.0
0.645	0.000	0.050	Pump	NSIDE 6	0.050	0.0
0.860	0.000	0.050	Pump	NSIDE 6	0.050	180.0

SPIRAL
Cutter: HCF
Cutter Radius: 0.579

X	Z	Depth		Rosette	Amp	Phase
0.200	0.000	0.030	Pump	SINE 8	0.050	0.0
0.300	0.000	0.035	Pump	SINE 8	0.050	90.0
0.400	0.000	0.040	Pump	SINE 8	0.050	180.0
0.500	0.000	0.045	Pump	SINE 8	0.050	270.0
0.600	0.000	0.050	Pump	SINE 8	0.050	0.0
0.700	0.000	0.055	Pump	SINE 8	0.050	90.0
0.800	0.000	0.060	Pump	SINE 8	0.050	180.0
0.900	0.000	0.065	Pump	SINE 8	0.050	270.0
1.000	0.000	0.070	Pump	SINE 8	0.050	0.0

WAVE
Cutter: HCF
Cutter Radius: 0.500

X	Z	Depth		Rosette	Amp	Phase
1.500	0.430	0.055	Pump	HEART 3	0.200	0.0
1.500	0.885	0.055	Pump	HEART 3	0.200	0.0
1.500	1.340	0.055	Pump	HEART 3	0.200	0.0
1.500	1.795	0.055	Pump	HEART 3	0.200	0.0

MDF2
Cutter: HCF
Cutter Radius: 0.500

X	Z	Depth		Rosette	Amp	Phase
-0.415	0.000	0.030	Rock	NSIDE 4	0.250	0.0
0.520	0.000	0.030	Rock	NSIDE 4	0.250	0.0
0.070	0.000	0.005		NONE		