



# Apogaea 2015 Big Money Round Grant Application

Beauty in art is often nothing but ugliness subdued.  
-- Jean Rostand

## 2015 Big Money Round Details

### Important things:

- You must submit your application using this form. Applications will not be accepted via email.
- If things aren't working, try refreshing the page
- Funds available: \$10,084.13
- Grants can be for any amount up to: \$3,000.00
- Application window opens / Begin accepting applications: January 1, 2015
- Application window closes / Applications complete and error free: Wednesday, January 21, 2015 at 11:59PM, Mountain time
- CATS review / Applicant question and answer: January 22, 2015 - February 15, 2015
- Applications final (no more editing the application by the applicant): Sunday, February 15, 2015 at 11:59PM, Mountain time
- CATS scoring: February 15, 2015 - February 26, 2015
- CATS grant selection meeting: February 26, 2015
- Results sent to applicants: March 1, 2015
- BOD / Finance Committee review: March 1, 2015 - March 15, 2015
- Signed grant agreement (the contract) due by: Saturday, March 7, 2015 at 11:59PM, Mountain time
- Disbursements process begins / Checks in the mail: On or around March 15, 2015

**Need help or have questions regarding the grant process? Email the Grant Robot for assistance!**

[Apogaea 2015 Grant Information](#)

[Apogaea Grant Frequently Asked Questions](#)

[What's going on with all this "safety" crap?!?](#)

## Synchrotensegrity

### Nick Geurts

**Category: Stand-alone Installation**

**Rating: G**

**Generator: Yes**

**Fire/Fuel: No**

**Sound: No**

**Project Promotions / Website:**

No website yet...

## Project Description

Synchrotensegrity is a 20 ft tall, 20ft diameter interactive effigy consisting of three pillars arching to a common central point at the top. The pillars are tensegrity structures meaning they are composed of wood compression struts and stranded steel tension cables where none of the compression struts touch each other and appear to float. This is a stable structure that appears to defy the laws of gravity. The wood struts will be hand-spun on a wood lathe from 2x2x4ft material. Each of the 234 struts will have a unique shape.

With respect to this year's theme, Synchronicity, the philosophy of this piece is to illustrate the chance connections brought about in this world of a mind-numbing amount of variables and events that shape our lives. Each of the three pillars will be wrapped in strands of addressable rgb leds. Individual leds will be illuminated in short bursts in a random pattern representing random events in the world. There will be a sensor at the base of each pillar and when a participant stands near it the random led pattern will coalesce into a more tangible form which will begin to flow toward the top of the pillar. When this form from two or three of the pillars reaches the top at the same time, a tesla coil at the top will discharge an arc of high-voltage electricity between the pillars representing a synchronistic event.

We understand that the temple and the effigy will be burned together this year. Based on the concept models of the temple we envision these two pieces coming together nicely for the burn, with the effigy spanning over the top of the main temple structure. Because we don't know the specific dimensions of the temple, we can work with the temple artist to fine tune the geometry of the effigy to make this happen.

## Logistics / Placement

The piece will be built at gammaspace, a collaborative workshop in Northwest Denver. We successfully built, transported, installed and took down our Burning Man 2014 honorarium project "Tree of (Im)permanence" at this space, which is a 20 ft tall x 8 ft diameter stainless steel tree. Synchrotensegrity will be 20 ft tall x 20 ft diameter, however it will be constructed in pieces that can be disassembled. We plan on renting a 20ft flatbed trailer to transport the piece to Apogaea (and back in the case of a fire ban). We plan on beginning construction immediately in March when the first round of funding is disbursed. This gives us around 3 months to complete the project which we feel is tight but do-able. Considering the extenuating circumstances of this year's effigy we would not be opposed to getting started earlier if at all possible to give us a little breathing room with this fairly complex project. Assuming a March start though, our detailed build plan is as follows:

March: Pick up wood struts from local lumber yard, begin spinning on wood lathe

Order electronics, write code for controllers

April: Begin structure construction: install wire connections, build pillars

Build controller circuits

Begin lighting testing

May: Continue structure construction

Install lighting and continue testing

Calibrate and test tesla coil

June: Final testing and disassembly.

The electronics will be fully sealed from rain, and is designed to withstand heavy winds.

installation: We envision having each pillar fully assembled prior to transport, and hauled to the site on a 20ft flatbed trailer. Each pillar weighs approximately 250lbs and we will have a plan to erect the 3 pieces. Once they are standing and connected at the top they form a stable structure.

The project will weigh approximately 800lbs and will be anchored to the ground so there is no risk of theft or damage.

All components will be fastened securely to the piece and there will be no possibility of creating or becoming MOOP. In the case of a fire ban we will disassemble, transport the pieces back to Denver and remove any MOOP created by others. If there is no fire ban we will thoroughly clean the remaining ash and any metallic remnants and haul it back with us to Denver. All electronics and plastic components will be removed prior to the burn.

The hours of operation will be 24 hours. We will have a member of our crew on watch continuously to ensure that any ambitious participants are prevented from climbing the piece. We will also have a safety kill switch to turn off the high voltage tesla coil component in case someone climbs to the top against our wishes.

## Team

Nick Geurts is a practicing structural engineer by trade and received an honorarium grant for Burning Man 2014 for "Tree of (Im)Permanence", a 20ft tall interactive stainless steel sculpture. The limbs of the tree support 25 stainless steel tubular bell chimes which are tuned to a two-octave scale. At the base is a toy piano which when played strikes the bells and associated LED light rods. This tree is currently installed at the Denver Performing Arts Complex in downtown Denver. Go to: <https://www.facebook.com/treeofimpermanence> for images and video of the tree construction, installation and operation.

Ryan Elmendorf has contributed his electronics and mechanical expertise to many Apogaea and Burning Man projects, such as the Temple of Transubstantiation(Apo 2013), "Diskopella" (a Burning Man 2014 art car) as well as provided electro-mechanical support and design for well-known artists. He designed and installed the electronics and

solenoids for the "Tree of (Im)Permanence" in 2014. He is likely most well-known for his custom gas-powered skateboard and lawn chair chariot.

Matt Tynan is an amazing woodworker and designed and contributed to building the Temple of Transubstantiation for Apogaea in 2013. He provided logistical and rigging expertise to the "Tree of (Im)Permanence" in 2014.

Mihai Mainu provided artistic support to the "Tree of (Im)Permanence" in 2014 by designing the base of the tree which was a root system plasma cut from an 8 ft diameter piece of stainless steel sheet.

## Safety

We will have a member of our crew on watch continuously to ensure that any ambitious participants are prevented from climbing the piece. We will also have a safety kill switch to turn off the high voltage tesla coil component in case someone climbs to the top against our wishes. Because the tesla coil will be relatively high off of the ground it will pose no electrical hazard to people standing on the ground.

As a practicing structural engineer I have designed the piece to withstand wind forces. It is also designed for climber loads in case someone climbs against our wishes.

At night it will be fully illuminated by its LEDs. It is designed as a freestanding structure so there will be no guy wires to deal with.

The leds and tesla coil will be run on a Honda 2000i generator which is quiet and enclosed. Fuel will be stored safely and in approved containers at our camp.

If there is no fire ban we plan on stacking firewood at the base of each pillar and due to the density of the wood struts the fire will progress easily up the pillars. We will coordinate with the temple artist and the rangers to come up with a safety plan for the burn.

## Project Costs / Value

Description	Cost	Source
Structure		Divider
(234) 2x2x48" pine struts	\$866.80	Grant
3000 linear feet x 1/8 ss wire rope	\$775.32	Grant
(468) aluminum ferrules	\$308.67	Grant
Electronics		Divider
Tesla coil kit	\$396.99	Grant
25ftx 10-3wire	\$43.74	Grant
350 ft addressable rgb led strip	\$393.53	Grant
Arduino mega 2560	\$47.76	Grant
Miscellaneous electronics components, connectors, etc.	\$150.00	Grant
Warehouse Rent and Transportation		Divider
Warehouse Rent for Build, \$600/mo	\$2,400.00	Applicant
20ft flatbed trailer rental, 7 days	\$337.90	Applicant
Transportation- fuel	\$40.00	Applicant
<b>TOTAL GRANT FUNDS REQUESTED</b>	<b>\$2,982.81</b>	
<b>TOTAL NON-GRANT FUNDS</b>	<b>\$2,777.90</b>	
<b>TOTAL PROJECT COST</b>	<b>\$5,760.71</b>	

## Additional Sources of Income

We plan on obtaining the remaining funding through a crowdsourcing campaign as well as fundraising parties within the community.

## Funding Options

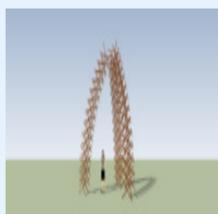
I have organized the project costs so that the requested grant money is scalable by the physical size of the piece. For instance, for the amount requested above, the piece will be 20ft tall by 20ft diameter. For 75% of the grant money requested the piece could be 15ft tall x 15ft diameter. The components themselves are essential to the intent of the piece, so we couldn't just get rid of the tesla coil for example. If there were more grant money available than that requested we would use it to upgrade to a larger tesla coil or add led strips to get a higher density of LEDs.

## Financial Summary

- The applicant is requesting \$2,982.81 in grant funds from Apogaea
- That is 51.78% of the \$5,760.71 total project cost
- Each grant dollar awarded to this grant buys \$1.93 of art.
- This grant would account for approximately \$1.30 of each \$120.00 ticket.
- This grant is 29.58% of the \$10,084.13 grant budget for this round.

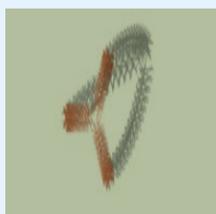
## Project files

Synchrotensegrity 1.jpg



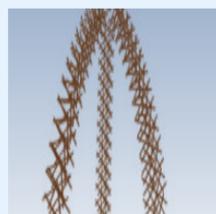
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Synchrotensegrity 2.jpg



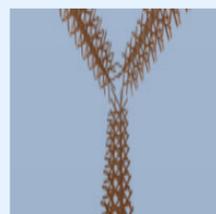
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Synchrotensegrity 3.jpg



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Synchrotensegrity 4.jpg



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## Questions from CATS about this application

**Rabbit asks:**

if we funded your project as a stand alone installation instead of an effigy, would this impact any of the project?

**Nick Geurts responds:**

Nope, no impact, thanks!

**James asks:**

So just to confirm, if you aren't selected as the Effigy, then you would like to be considered as a stand-alone installation that wouldn't be burned?

**Nick Geurts responds:**

Yeah, that would be a bummer to not potentially be burned but the concept would still be applicable as a stand-alone installation. Thanks!