



namri

sme



NSF Manufacturing Blue Sky Competition and SME David Dornfeld Manufacturing Vision Award

Video: <https://youtu.be/AITVZIfnkHY>

Abstracts are due March 1, 2021. Instructions on preparing and submitting abstracts will be available at <http://www.sme.org/blue-sky-competition/>.

The Fourth Annual NSF Manufacturing Blue Sky Competition, funded by the National Science Foundation, will be held during the 2021 SME North American Manufacturing Research Conference (NAMRC) and ASME Manufacturing Science and Engineering Conference (MSEC), June 21-25, 2021, which will be held online. The winner of the competition will receive the SME David Dornfeld Manufacturing Vision Award.

The aim of this annual competition is to influence the future of manufacturing research and education in the United States through new, visionary ideas of the future. Such visionary ideas are often described as “radical,” “outrageous,” “transformational,” “unconventional,” “convergent,” and “breakthrough.” Presentations should pose grand challenges to be addressed by pursuing the manufacturing research vision, describing the intersections between disparate disciplines necessary to advance that vision. Topical areas should extend beyond the scope of a single investigator and show potential for transformative impact in areas of interest to federal agencies.

It is likely that team efforts will be needed to formulate such ideas. Therefore, interdisciplinary collaborations are encouraged, including disciplines outside of engineering.

Abstracts will be judged by a selection committee consisting of members from government and industry covering a broad range of manufacturing interests. About six abstracts will be selected (finalists) to make synchronous presentations on Wednesday, June 23, 2021, during the virtual NAMRC/MSEC conference that will be held online. Conference registration expenses of the selected speakers (i.e., finalists) will be reimbursed through the University of Wisconsin-Madison.

The finalists, and particularly the winner, are expected to work with the organizers to broadly disseminate their Blue Sky idea (e.g., through a workshop, publishing in *Manufacturing Letters*).

After the conference, SME will post links to presentation slides, so that the ideas can be shared with the manufacturing community. Submitting an abstract for the competition requires that the submitters agree to publish their presentation slides through the SME website. Abstracts and presentations from the first three competitions have been posted at <http://www.sme.org/blue-sky-competition/>.

People who are interested in submitting abstracts to the competition are strongly encouraged to talk to Professors Frank Pfefferkorn (frank.pfefferkorn@wisc.edu), ZJ Pei (zjpei@tamu.edu), or Tony Schmitz (tony.schmitz@utk.edu), who will not be serving on the selection committee. It is the intent of the organizers to provide feedback and insight to abstract submitters in an effort to put forward the strongest ideas for advancing manufacturing research in the United States.

!"#\$%&'()*+,-./01+/%

93A,*B,-8%CD0/+/:7*//:7,-+C%7'4*+5%9@@,+B*%
45-0653+07,-8!
1/#\$2%3#4!603'&!6%&'8+'&!-0)\$+#0!609+'0)+*2!
6%&'8+'&!/:!
!
E,8,+5%>'10(*+7,3%:7'3*//,-8%F/,-8%G,8A%:*76'7(5-3*%
&'()0+,-8%!
!(")/5%3678255-%;&+<\$0!5#(())=&!+!>&7.##++<*2!)!0#)02!;:!
%
H-+*753+,B*%>,7+051%G5-@/!J-%45-0653+07,-8%
9/7+##.6#!?=@&! "#%&'(\$)*2!A&(!60,0*&)&2!5-!
K*L+%M*-*75+, '-%98,1*%45-0653+07,-8%+,%N-501*%P: ',-+%6%
F*Q%&0/+ '(,R5+, '-%6'7%&' ()1*L%>*A,31*/%
:*,%</77'5-!B\$C+'(C*!:\$'7'O,)! / + 'DE2!B'O),+ '@2! / >!
%
SA57,-8%6'7%98,1,+T%
9'=2%>"4;27-! / O)&'D\$!10!5#7E2! ?&+'\$0!2!56!
%
UA*%M1'051%G0(5-1453A,-*%K*0751%K*+V'7W%
. "2;%?2*4!5>: F / G2! ?1* 8 +=). 2!5- !
%
UA*%H-+*7-*+%6%SW,11/X%J-1,-*%>,7+051%S,(0!5+'7/!6'7%SW,11*%
U75@* /%
9/7=%9';5!-+'). 3&(&)'#! "#%&'(\$)*2!4%0#(+)+#2!56!

2,'(,*+3%45-0653+07,-8!
!"#\$%&'()*+,-! "#%&'(\$)*!+,-+').! / O'+!\$#0!O)! / .O'1+))&2!
/ .O'1+))&2! - /!
!
!
9%45-0653+07,-8%:7'3*//%&' (),1*7%;4:&<%=>,/, '-%6'7%5%
?0+07,/,3%45-0653+07,-8%:575@,8 (%!
. / #/ O / "- + ') . 3&(&)'#! "#%&'(\$)*2!4%0#(+)+#2!56!

!"#Y%&'()*+,-./01+/%

:*7' -51,R*%45-0653+07,-8X%:/T3A'1'8T%5-%S'3,'1'8T%5/!
?0-@5(*+51%E*/8-N1*(*-+/,-%?0+07*%9@B5-3*%
:7'@03+, '-%ST/+*(/!
K/'#2%92/75!L/7! "@%A=(/M/#%?'/=2!B7*%96:(2!H*'(/7@%E/=!
0#@!K/67/%&+/#;2\$%N% / 1&8 (+#! "#%&'(\$)*2! / 1&8 (+#2!B /!
!
!
E,/7,00+*%E*3*+751,R*% . 0751%98,1*%45-0653+07,-8!
. "2;%?2*4!H!5>: F / G2! ?1* 8 +=). 2!5- !!
%
M1'051%E,/7,00+*%45-0653+07,-8%6%:*7' -51,R*%:'@03+ /%
5/!5!S*7B,3*!
A:/27+&('!H! "#%&'(\$)*!+;!F\$7. \$<0#2! :##! : '9+'2!F5!
%
D0/+,-IU,(%[*57,-8%6'7%A*%?53+'7T%?' '7%
. 28872\$H22@%H!O\$<##\$0!>&7. 2!P!07C(9= <2!O :!!
!!
4*+5('7)A,3%45-0653+07,-8X%UA*%UA,7@% \ 5B*%,-%E,8,+5!
45-0653+07,-8!
G;2###&%O/2(##H!> .&!G. \$+!B)O)! "#%&'(\$)*2! / +! = 89 = (2!GQ!O#@!
A;/##! /6!H! "#%&'(\$)*!+;!F\$7. \$<0#2! :##! : '9+'2!F5!

ZE%:7,-,-8%6'7%&B,1%#-675/703+07*%&' - /703+, '-!
A;/!%B;C/#\$2! ?24/7%3;/#;/7!&+2D(/#2%E//2!F/' (/7\$G7/5;2\$-!
F"8'/%H\$/ " = "C5=H!>+10(!: JF! "#%&'(\$)*2! / +!&<&!B)O)\$+##2!>K!
!
!
?53+'7,/H-!S)53*%!
A;/%9/;5(2!H! "#%&'(\$)*!+;! : 'CO#(O(2!LO*%))&%\$!1&2! : MN!O#@!
</75(/%9/;5(2!H! / O)\$,+'#0!

!"#] %&'()*+,-./01+/%

&A5-8,-8%A*%?53*;/<'6%45-0653+07,-8%
B.O3#! ?E! F+*O#! H! -O)\$+#0! 5#(())=&! +,! B)O#0'O'(! O#@!
>&7.##++<*2! ; 0\$). &'(9= <2! FV!
!
&'()0+*7% H-+*875+*%45-0653+07,-8%^ "X% 9-%N3' /T/+*('%6%
&'0@105/*%&K% H-+*875+*% V,+A%&'0@105/*%&9E%&94%
5-@%&9: :%
/ . \$##@=8!GC3=@\$&!H! "#%&'(\$)*!+;!F\$7. \$<0#2! :##! : '9+'2!F5!
!
M*%U*3A-'1'8,* /9))1,*@%+ '%45-0653+07,-8%
R+.#!SE!B7. =&!1&'2! A+##B=C!6&&2! ?&\$!U\$#<! A=2!G(70'! / O()\$!1+!H!
" #%&'(\$)*!+;!L1+ '\$02! / :!
!
H-@0/+7T%G "%
QO'(.O!F0!(. &!H!B0#)O! / !O'02! / : N!O#@! : XO*!F0!(. &!H! "#%&'(\$)*!
+;! : 'CO#(O(2!LO*%))&%\$!1&2! : M!
!
: ', -+! '6!&57*% N-8,-*7*% U, //O*% S(57+% P?53+'7,/QX%
ST- *78,/,3%N-8,-*7,-8%+,%N-501*% [50!+ '1&!, -,3!U75- /15+, '-%
M+ .O#! : !B. '\$3O\$C&'!H! -+').! / O'+!\$#0!B)O)! "#%&'(\$)*2!M0!&<. 2!
- /!

&'()0+*7%M5(* /5/5%?0+07*%'6%45-0653+07,-8%N@035+, '-%
B=@.O#(. =! -O.O)O!H! : BF6! " B2! A\$)+#2! / >!
!
!
9-%J)*-%E5+5%K*+V'7W%6'7%45-0653+07,-8%
RO*%&&D! SO'O#@CO'2! : #@&3! >'8 8&'2! O#@! SO)! 5!1+=T! H! ; 4!
M&(&O'7. 2! - \$(CO*=#02! - U!