Congratulations class of 2015
Thanks to the greatest mother Um Falah <3

Shaymaa Abdulla
Thank you to my parents and my sister for all their support and guidance, and to all my family and friends, for keeping me sane over the past 4 years

Aman Aberra
ASU has given an amazing and irreplaceable experience. My experiences have granted me various priceless opportunities that I am greatly thankful for.

Edward Acquah
I would like to thank my family and friends for their support these last couple of years. I would also like to thank my professors for their guidance.

Matthew Ryan Adame
Thanks mom and dad for all your support! I couldn't have done it without you two! Love you lots!

Anngela Christina Adams
I would like to thank my family for their support throughout my college career. I wouldn't be here without their encouragement.

Raj Ahir
Thank you Mom, Dad, my little Brother and all of my friends for supporting me to come this far.

Mamun Ahmed
Thank you my wonderful wife, Maria.. LOVE YOU!

Bradley Ailor
Thank you to my parents for all of your support but mostly to my wife and sons. Thank you for helping me through.

M. Bryce Albretsen
Dear Family,
I want you to know how much I appreciate all of the time and energy you put into helping me throughout my college career.
I Love You All

Ziyad Alhassnah
AZ is My 1st USA State, and ASU is the one and the only one who I will be admiring the most for my life.

Abdulaziz Ahmed N Alhuwaymil
I have learned so much during my time at ASU and none of it would have been possible if not for my family and friends' support. Love you all!

Jason Kenneth Allen
I want to give a big thanks to my parents for always motivating me to my success.

Sara Almalih
I truly could not have made it here today without all of your love and support.

Saleh Mutair Almutair
i wouldn't even dream of being here if it wasn't for my beloved family! <3

Abdulaziz Al-Tamimi
share your victory 🦅
#ASUGrad
#FultonGrad
#ASUengineering
Thank you for everything you've done for us Mom. I love you more than you could ever know! Diego, you're pretty cool too dude. I guess I love you too.

Antonio Alvarado
I would like to thank my friends and family for all the love and support I have gotten. I could not have done it without them.

Bailey Ammons
A special thank you to my parents, Mr. & Mrs. Mahdi Al-Ansari. You supported me through thick and thin and I appreciate it!
I love you!!!

Ahmed Mahdi Ansari
Thank you to my mom & dad for supporting me in all my dreams & aspirations & for always believing in me. I love you both!

- Camille Armendariz

Camille Armendariz
Congratulations and Thank You to My Parents. Two kids down, one to go! Thank you for everything you have given us, love, support, and funding ;)

Alexander Arveson
Thank You to all my family and friends for the support and motivation to finish my degree, especially my Mom, Dad, and Brother.

Daniel Ascencio
Thank you J.T. Austin, Jacey Austin, Brock Austin, and Melissa for all your love and support! I love you all!

Charles Barry Austin
ASU changed my world by making me realize how vast and diverse it is. Thank you ASU for being the biggest and most diverse college in the U.S.

Shayan Azimi
To the family and friends who endured me during my teenage years, and school years, the biggest thank you!!

Kale Aziz
Thank you Irene, Hunter and Reese for all of your support and understanding during this journey. I couldn't have done it without you. I love you!

Cecil Otto Baird
I'm so lucky to have a supportive family as I pursue higher education. Shout out to my grandparents who made a special effort to be here. Love you all!

Lindsey Baker
Thank you Papa and Mama Carmen y Armando Baldenegro

Armando Baldenegro
Thank you to all my family and friends for all of the love and support. I love you!

Amy Lynn Baldwin
"It's All About Choices" - Troy Bales

KCCO

Jeffrey Robert Bales
Thank you to all my family and friends. I wouldn't have been able to make it without you all.

Matthew Ryan Banuelos
share your victory

#ASUGrad
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#ASUengineering
My family and friends for all of their support

Raul Hernandez Barbosa
The light at the end of the tunnel is no longer an on coming train, but rather a whole new world to explore! Thanks for everything.

Bryan Robert Barchey
Gracias por todo el apoyo! Los quiero mucho!

Jeanette Rosas Barillas
My time spent here at ASU has been an absolutely incredible experience. I owe my success and happiness to the loving support of my friends and family.

Andrew Robert Barkan
I would like to thank my Mom and Dad for supporting me throughout everything. They have been my role models and I could not have asked for more.

Trevor Michael Barker
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Sylvia Barnai
Family INSPIRED me. Friends ENCOURAGED me. Faith CARRIED me.

Sharon Arlene Bast
Thanks family, friends for your support throughout all these years. You positive encouragement has meant a lot. Especially my wife Lauren. I love you.

Isaac Adrian Bates
My Bateson Family is the reason I'm here today. I would not have been able to without your infinite love and support.

Amanda Marie Bateson
Thanks for all your support Mom, Dad, Megan, and Jess.

Joshua Peter Bafort
My experience:
#PvWest #SigEp
#Puppy #SwitchedMajorTwice
#VictoryLap #ByeASU
#ThanksMom

Timothy Stephen Belda
Couldn't have done it without my family and friends.

Jonathan Scott Bell
Thank you Melissa, Nicole, Gabrianna, Morrigan and Maddison for your patience through this journey! We did it! Go Vols and Go Navy!

Jeffrey Brian Benson
I credit God's blessing, my family's support, and my mentors' guidance in helping me obtain this goal in my education and success.

Gabriel Rudy Bernal
God Blessed me with an amazing family, I wouldn't be here without them. Thank you for always being there.

Derek Biah
share your victory

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I love you Sarah! I couldn't have done it without you!

Joseph Bihms
Mom and Dad: Thank you for your love and support! I couldn't have done it without you. Andrew: Thank you for being such a great role model! - Kyle

Kyle Robert Binder
Thank you to all my family. You've been so supportive as I have continued my education at ASU. I love you and thank you for coming to see me graduate.

Tanner Jacob Bitz
Thanks for the support during this time frame. I love you very much!!!

Your Hubby

Cecil Ofier Blandon
Thanks god to make my dream come true. Also, without my parents support, courage, and faith I will never reach this point. Big thanks to my whole family.

Abdulrahman Fareed S Bogari
Thank you to my supportive parents. I could not have done it without you believing in me and cheering me on all the way!

Heather Lynn Borgard
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Anthony Nicholas Boyd
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Tina Bradley
Thank you Mom (Debbie), Dad (Bryan), Nana (Sharon), and Catie for your support these last few years. I truly could not have achieved this without you!!

Alexander Bryan Briggs
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Matthew Jefferson Briggs
Would like to thank my mentor Dr. Bruce Towe for all of his help throughout the past year. Also I would like to thank Michael Juby and Nathan Deacon.

Cole Truman Brown
Thank you Brown family for enduring this process and believing in me. Thank you Jenny, Wyatt, Mom, Dad, and Shawn. I couldn't have done it without you.

Jason William Brown
Thank you to everyone who helped me get here. I would not be here without you!

Kyle William Brue
Thank You, Mom Qua Cao, Dad Hoa Bui, Wife Kim Ky, and Sons Chase and Brenden Bui. This would not be possible without your love and support.

Hoc Van Bui
Thank You all who have provided, guided, and simply put up with me over the last four years. I greatly appreciate you all!

Sean Buizer
share your victory

#ASUGrad
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#ASUengineering
Thanks to my Parents Chris and Teri Burger, my Grandparents Chris and Marie Burger and my wife Rachel for supporting through school.

Joshua Christian Burger
I couldn't have made it this far without the support of my Family, Friends, and most of all my wife Lindsey! Thank you all!

Ryan Joseph Burke
Thank you Mom & Ash for everything! I wouldn't be where I am today without you guys! I love you both!!

- Love Andrew

Andrew John Burnham
Shout to the Caffie, Barone, and ASU Engineering family for their continued love and support. You all have allowed me to mature and pursue my goals.

Brandon Ayanti Caffie
It was good. Classmates, Hope Christian Church, Navigators, Beautiful Campus. 4 years of experience and growth

Joshua Lee Cantrell
Special thanks to my parents (Orhan & Beyhan) for their support. Tesekkürler

Koray Canturk
Thank you to my family for all of your sacrifice, love, and support. I love you!

Josiah Edward Carlon
Thank you Redbull and Google for making this possible

Ryan Michael Case
OAK STREET!!! Thanks and love to all my family, friends, and classmates! I feel blessed, WAY UP, I feel blessed!

Parminder Singh Chanda
Go Air Devils! Thanks Dr. T, Don, Tyler, Jeffrey, Brandon, Sid, James, Nathan, Colton, Joseph, Morden, Nick, Ben, Brendan, Lee, Ivan, & everyone else!

Eric Chang
I want to thank my family for all the successes and failures to this point and many more in the future.

Jacob Ernest Chavez
Thank you to my wife, mother, step-father and father. Calling out my brothers, sisters and siblings, I don't want to be the only graduate, let's go!!!

Antoine Jordean Chee
Thank you to my beautiful wife Lauren and my kids Genivieve & Luke, I love you! To all of my fellow ChemEs, It’s been a real pleasure. We did it!

Brent Clarke Chesley
Hi Mom!

Thank you for your support.

- Robert

Robert Jay Chiang
Thank you Dave, Maria, Deanna, and Julia for always being there for me and being the best family in the world. I couldn't have done it without you.

Robert David Chittum
share your victory 🐦

#ASUGrad
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#ASUengineering
Thank you to my mom and dad for raising me right. And a big thanks to all my family and friends; without your love I wouldn't be where I am today.

Matthew Ryan Christen
To my wife Summer and my daughter Leah: Thank you for standing by me and believing in me. It wasn't always easy but we did it!

Charles Brock Christiansen
Thank you Mom and Dad for all of your support and help over the last few years!

Sarah Elizabeth Churchwell
Muchas gracias familia! Agradezco su apoyo

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Ian Taylor Conaway
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Samantha Lynn Cooper
Thank you for the education and the opportunity arising from it, I appreciate all the learning I have done over the last four and a half years.

Ryan Joseph Copeland
Learning about computer code taught us that a compiler's favorite word is: 'No'
Thanks for all the love and support over the years! We made it!

Alphonso Sean Crawford
To my Dad, Mom, and everyone else that has supported me: thank you so much for believing in me! My journey is just beginning.

Kyle Benjamin Crosner
Mom & Dad, thank you. Being here, is a dream come true. I am truly blessed in having a wonderful family who supports me in the pursuit of my dreams.

Erik Gabriel Rios Cruz
Thank you Andrew, Mom and Dad!

Jonathan Daniel Davis
Thank you Mom and Dad for giving me this amazing opportunity. To my best friends Stephen Renee Marie & Alex thank you for making these the best 4 years.

Brittany Debes
Thanks to my family for understanding what this meant for me and excusing me from countless family time to get this degree! I Love You!

Adam Jason Degner
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#ASUGrad
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#ASUEngineering
Thanks to my family and friends for support and love. Dad you are my hero.
-Maddy.

Madhure C. Desarda
Exceptionally appreciative for support from my family and friends throughout my education and especially thankful to my parents Rosa and Sergio Diaz.

Jose Filiberto Diaz
I would like to thank you all for the support of what I am doing, the long hours of work, and school, and training. I love you all so much!

Zachary Lee Dieman
Adsorption Capacity and Kinetics of ZIF 68

Jacob Langley, Chemical Engineering
Mentor: Jerry Lin, Regents Professor
School for Engineering of Matter, Transport and Energy

What are the optimal conditions for carbon dioxide adsorption using ZIF 68?

The adsorption capacities of 46 and 32 hour run times of ZIF 68 were measured using a Cahn D 101 microbalance, which monitored the weight change of a 100 mg sample of ZIF 68 powder exposed to a gas containing various concentrations of CO2. Once collected, the data was used to calculate the diffusion of CO2 within the walls of the pores.

DISCUSSION

Based on the results of the SEM measurements, it was observed that the 25 µm thick sample had lower electron capture compared to the 10 µm thick sample. This difference in electron capture indicated higher relative intensity of lower wavelengths, suggesting the presence of more ZIF 68 in the thicker sample.
Thanks Mom

Nickolas Gregory Dodd
Thank you for everything you've done and being there for me since this all began.

Alex Eleneski
Thank you Mom, Dad, Lauren, Grandpa Marv, Grandma Helen, Haley and friends for supporting me!

Love,

Tanner Michael Erickson
The heroism of my father empowered me on this journey. By defeating adversity through selflessness he taught me courage. My father Isidro is my hero.

Tomas Espinosa
Gracias mi Familia te amo bastante! Thank you very much family you will always be there and thank you DiTore family as well!

Ricardo Manuel Farfan
I would like to thank Dr. Stabenfeldt and my lab members for giving me the opportunity to be involved with research involving traumatic brain injury.

Chase Fauer
Thank you Dad and Mom. Thank you for supporting and respecting me when I chose a way to adventure. Thank you for loving me. I love you!

Jingxian Feng
Thank you Mom, Dad, and Landa for your continuous support and love. Thank you Alex for always believing in me. I love you all!

Kaylee Elise Fentnor
Thanks Mom, Dad and Charlie!!

Mark Travis Ferry
To my wife and son, thank you for walking with me into the future.

Lhoussaine Ferza
Thank you Jade, Mom, Dad, Amanda and Craig for all of your help.

James Finch
I'd like to give a special thank you to my friends and family for supporting me both in school and in my personal life throughout the many years.

Fabian Josef Fink
share your victory

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Thank you so much for everything! I love you guys!

Marcus Finney
Thanks to my family, friends, and 1st rates. Especially to Rawn, my fiancé Michael, and student loans. Would've lost my mind without all the support!

Brooke Olivia Fisher
Thanks for all the help and support family, finally made it!!

Jermaine Kyle Fowler
Thank you to my family! I love you all so much!

Amanda Rose Freed
A big thanks to Madre and Padre Gabrielson for supporting a hopeless cause!

Olaf M. Gabrielson
To all my friends and family, thank you for your continual support and motivation through these years.

Alex Mauricio Pompa Gale
Thank you Mom, Dad and Sis for all your love and support! Couldn't have done it without you!

Kyle Alexander Galloway
To my parents, siblings and all other friends and family, thank you oh so very much. I wouldn't be here without your continual guidance and support <3

Aaron Henry Gardner
I first and foremost give thanks and glory to God - my Lord Jesus Christ. I also thank my family and friends for all their support. God Bless!!!

Isaac Garnica
Thank you to my Mom for being the strongest rose with thorns. To my Dad for being the noble soul he is and Thank you to my siblings for believing in me.

Khrizya Yojarah Gastelum
Thank you to my family for supporting me through the last four years. It has been tough but very rewarding.

Nicholas Edward Giovannucci
Thank you for the great memories and for fostering an innovative environment for change.

Shardul Suresh Golwalkar
I want to thank my family for helping me out throughout these 4 years. I love you all.

Jimmy Alejandro Gomez
Thank you for providing the means to achieve a privileged education.

Gian Paolo Gonzalez
Thank you to my family in helping me graduate. When times were tough you were always there supporting and encouraging me to do my best.

TGood

Tyler Justin Good
share your victory
#ASUGrad
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#ASUengineering
I would like to thank my parents, my sister, Rebecca, for all of their support in completing my education.

Zachary Daniel Gordon
Special thanks to my mother Teresa, father Jesus, Jorge, Karla, Paty, Kathya, Erick, and everyone who supported me by making this day a reality
Thank You

Jesus Guadalupe Granados
Thank you to my wife, my family, and all those who have supported me in this journey!

Tanner Blake Green
thanks mom

Katherine Elizabeth Grinstead
To my family,
Thank you for always being my support system. Your love and faith gave me the strength and perseverance to follow my dreams.
I love you!

Alicia Mae Guccione
Thank you for all your support & guidance. I love you Mom & Dad!

Ashley Denise Guerrero
"When everything goes to hell, the people who stand by you without flinching — they are your family."

I love you all. "Thank you" just isn't enough.

Cameron Alexander Gunn
Thank you to my dad and mom, thank you Yuki, thank you Alex and Shane, love you all.

Xin Guo
Thank you to my parents for all of their love and support. This ones for you!

Mayuri Gupta
I would like to thank my mom, dad and my sister Nikita! Couldn't have done it without the support and love from you guys!

Nehal Gupta
To all of my parents: Thank you so much for helping make all of this possible! I love you more than you can count to!

Love

Jenifer Marie Gura
Thanks Mom and Dad for providing me with this wonderful opportunity to better my future! I love and appreciate all the support you have given me! -Fav

Favian Guzman
I want to thank my wonderful wife and my three beautiful boys, Edwin, Samuel and Valentin.

Troy Alan Haddock
Guys I did it!!

Thank you for your unwavering love & support. I'm so blessed to have you all in my life, I love you all so much!

Mackenzie Ann Hagan
Thank you so much

Jazakum Allah khairan for everything

Hossam Ali M Halawani
share your victory 🦅

#ASUGrad
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Mom and Dad
Thank you for the many years of love and support! I could not have accomplished this without you!

Eric David Halverson
Thanks for everything love you all!!

Tyler Charles Hansen
Thanks for all of your support!

Cory Robert Harasha
Mom and Dad, I love you! Thanks for supporting me for 4 years of college and 22 years of life!
P.S. Thank you for paying my tuition.

Chad Jackson Hardgrove
I would like to thank my family for their continued support. I would also like to thank my friends and faculty who aided me in my success at ASU.

Keithan Anthony Harris
I have to honestly say that it was my sister that helped me stay "mostly" focused on college and to do what I loved, so thank you nee-chan!

William Skylor Haselwood
Thank you for all your loving support Mom, Dad, Clay, and Chandler!

Brandon Cory Hatathlie
Thank you Mom, Dad and Melissa for the support over the years. Love you all, and can't wait to spend my extra time with you!

Aaron Craig Hatfield
Great to be graduating as a Sun Devil. I want to thank my family for all the support, this wouldn't have been possible without them. Love You all!

Anthony Hayer
A special thanks to everyone who supported me and my crazy schedule!

Colt Patrik Hegardt
Thanks for supporting me all these years, Mom and Dad! Much love; it wouldn't have been possible without you.

Stephen Edward Hermens
I wanted to thank my wonderful family for the support they have showed me during my time at ASU. I love you all very much, especially my son Ethan.

Michelle Hernandez
Thank you Elena and Jose, mom and dad, for all your love and support. Thank you Tia Rosa y la familia Flores.

Sayra Guadalupe Hernandez
Thank you to everyone who helped me get to this point in my life, I appreciate everyone for all their support. Thank you ma and dad, love you!

Shannon Lee Hertfelder
Hi Mom and Dad!

Support S.683 - Compassionate Access, Research Expansion, and Respect States (CARERS) Act of 2015

Go Green!

Cameron James Hines
share your victory

#ASUGrad
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Thank you Mom and Dad, for giving me the opportunity
Love you!! your son-Gary

Gary Ho
Mom, thank you for being my biggest fan and supporter, I couldn't have done it without you! Love Matt

Matthew J. Homco
Thank you, Mom and Dad! I truly could not have done it without you.

-Love,

Molly Kindelan Hopcraft
I have had an amazing time and experience with ASU. Rock on devils!!

Fallon Marina Howard
Thank you to everyone that has inspired me. I appreciate the support from friends and family that have brought us here today. Here's to the future!

Dallis Hughes
Thank you friends and family, for all your support. I could never have done it without you all.

Scott Richmond Hughes
My degree really needs two names on it, mine and my wife's. I could not have done this without you Fabriza! Thank You! I LOVE You!

XOXO

Russel Hunt
A big thanks to my wonderful family Michele, Neil, and Angela Tugaoen for always being there and believing in me. I love you!

Neil-Richard Tugaoen II
At ASU I was able to meet brothers and sisters; therefore I now call ASU my home for life. I am and will always be a Sun Devil family. Go Devils!!

Innocent N Irakoze
I am extremely grateful for your help.

Shinya Ishizaki
To my wife Nizhoni, my daughters (and future Sun Devils) Sydney, Nataani and Ella: You are the reasons I am here today! I love you all!

Kevin Ray Jacob
Thank you mom, dad, family and friends for all of your support these past four years!

Melissa Anne James
To my family and friends, thank you for all of your love and support through all the ups and downs.

Daniel Nolan Jameson
Thank you to my family and friends for their support through my years here at ASU. Finally done!

Martin Joseph Colmenero Jimenez
To Lindsay Lynch, the love of my life, thank you for pushing me to do this, thank you for all of your support, I love you like crazy! I crushed it :)

Dana Royce Johnson
share your victory ✈️

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Family you all mean the world to me. I would not be here now if it was not for you. Thank you for your love and support. I love you all!

Kristine Yvonne Johnson
How does the “bee” phase separation correlate to microstructure at the asphalt-aggregate interface?

Zachary Kopp, Civil Engineering
Mentor: Shane Underwood, Assistant Research Professor
School of Sustainable Engineering and the Built Environment
Thank you for your love and support! Your guidance to make it through and make decisions was invaluable.

Scott Thomas Johnson
A big thank you to my sponsors. I promise it was worth it.

Nick Kealii Jorgenson
To my Family thank you for your support, we did it. I love you, and a special thank you to Baby Girl and Eli my greatest gifts, my support, my life!!

Frederick R. Morris Jr.
Gracias mamá y papá, es por todo el amor y apoyo que me han dado que estoy aquí haciéndolos orgullosos. Los quiero muchísimo!

Fernando Estrada Jr
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Joel Greig Wright Jr
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Kelsey Kristine Jull
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Michael Dennis Boggs Junior
Thank you to my mom and dad for always putting my best interests first, pushing me to do my best, and being my support. I love you both very much.

Samantha Maria Juniff
Thanks for EVERYTHING Mom and Dad! I love you guys!

Omar Karaboulad
Faraz joonaam, Maman, Baba, and Dadashi, I have the best family and friends that a person could wish for. Thank you for the support. I LOVE YOU all.

Bahareh Kargaran
I would not be standing here today without the support of my loving family. Words can not express how much I appreciate you all!

Kan Kawabata
While today is full of light and hope, they weren't always so. Here's to those of you with whom I learned more about the limits of my own strength.

Brandon Patrick Keeber
A heartfelt thank you to my wonderful wife and children who have been my compass on this incredible journey!

Tyler Cade Keeling
FORK EM DEVILS!!!
share your victory 🐦

#ASUGrad
#FultonGrad
#ASUengineering
Thank you MOM and DAD for pushing me and supporting me through these years of hard work. Thank you Sarah for being with me during this experience.

Sean Vincent Keever
Thank you to my mom, dad, and sister Lexie for all your love and support. I have learned through your example the value of hard work and dedication.

Amanda Nicole Keil
Dear Family, Thank you for your unending support and constant availability to take phone calls. Carry the flag!

Marion Zoe Branch Kelly
Thank you Vanessa for putting up with my shenanigans! I did it for my family.

Matthew Zane Kilford
...King Family!...

Thank you to my parents for being so supportive and helping prepare me for the world.

Hiieee Kenzie and Riley! I ran out of spac

Zakary Alexander King
To my friends and family:
Thank you for all of your support;
without you this would not have been possible!
Jeffrey

Jeffrey Jordan Kirkman
I want to thank all of my family and friends for supporting me during my college career.

Dalton Kiss
Thank you Mom, Dad & Lisa for your support!

Andrew John Klages
Thank you so much Mom, Dad, Elke and Scott for your support through these past 4 years. You're all amazing and I wouldn't have survived without you.

Madison Alexandria Klug
Thank you Mom & Dad for believing in me and helping me along the way. I couldn't have done it without you.

Jacob Thomas Korinko
ASU sure has taken me for a ride, but now it seems I have reached my destination. I will miss everyone but I am moving on to greater things!

Gary Steven Krainz
I just want to say thank you to my Mom and Dad for being the Ku-est parents I know.

Michael Jason Ku
Thank you to my Dad and Mom, Naresh and Amarjit, I love you guys, I could not have done it with you. Congrats to my Brother Karan your next up buddy!

Rohan Kumar
Thank you so much Mom and Dad, I couldn't have done it without you!

Tyler Matthew Kunce
I would like to express my deepest gratitude to my parents, girlfriend Aijana, brother, and to the Bolashak IS Org for their invaluable support!

Olzhas Kurenov
share your victory
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#ASUengineering
Thank you so much to my mother, father, sisters, brother, niece and nephew. I couldn't have done it without your support.

Noor Lallmamode
Everyone, thank you for everything you have done and your support all these years.

Cody Joseph Lane
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Winnie Ching Yan Yan Lau
Shout out and thank you to all of my family, my girlfriend, Sarah, and my friends, for being here to celebrate this moment of my life! I love you all!

Tyler Christian Lavineta
It's been fun. Dueces!

John Mark Lillyblad
What an adventure this has been. Thanks everyone for the support and memories!

Colten Ray Lindauer
Thanks and love to my family

Thomas Michael Linnen
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Shannon Dawn Lippincott
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Rebecca Ann Little
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Brian Neal Locksa
Thank You Tamela, Without you I wouldn't Be here today! I Love You! Thank You GI Bill! Thank you Navy! Thank you to my family! Thank you USA!

Christopher Allan Loff
To Mom and Dad,

Team LAMBO for the win!!! :)

Love you guys.

Steven Francis Lombardi
A special I love you to my very caring Arizona family! And Dad, I love you to the moon and back! Thanks DEWSC faculty and students! GO DEVILS!

Keila Dawn Lombardozzi
Thank you for all of your support!

Channing Ludden
Thank you dad for all your help. Thank you Michelle for your support and love. And thank you Google for all the answers and free textbooks.

Eric James Luttenegger
share your victory

#ASUGrad
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#ASUengineering
Thank you for the support throughout the years. I greatly appreciate everything you've done.

Brandon Tyler Lyons
Thank you Jordan Paul, Mom and Dad! I couldn't have done this without your love and support. I love you Junior and Mia!

Juana Iriis Maes
There was a never a moment that I was without your support. Thank you for being my inspiration and my rock. -Gabby

Gabrielle Elise Maestas
It takes incredibly dedicated parents to support me for as long as you have. Thank you for the best gift one could give - an education!

Ryan Mahadocon
Thank you Mom and Dad for everything you have given me throughout all of my education!

Alexander Ryan Mallison
Improving Damage Detection and Localization in Complex Composites

Zach Barnes, Mechanical Engineering

Advisor: Abhishek Chhatrappthy, Regents' Professor, Aerospace Engineering
School for Engineering of Matter, Transport, and Energy

Goal
- Improve damage detection techniques by using matching pursuit decomposition (MPD) on data collected using guided waves (GWs).

Method
- A round-robin approach was used to collect GW data along each path between sensor. MPD analysis of the data provided the time of arrival of the first wave packet for each of these sensor paths. Paths with damage along them were found from discrepancies in the time of arrival along symmetric flight paths. The intersection of these paths reveals the region of delamination that was intentionally created during fabrication of the composite plates used for testing. The results of this method reveal a novel technique for detecting damage in complex composites.

Experimental system
- One of the carbon fiber epoxy plates used for testing. The PZT sensors can be seen connected to alligator clips, which lead to the data acquisition controller.

Applications
- Structural health monitoring plays an important role in the aerospace industry. This research can be applied to improve the monitoring of composite structures, leading to safer and more reliable aircraft.
Thank you mom and Jordan for being my greatest support throughout college! I love you both!

Love,

Eric William Malone
Gracias mamá y papá.
Gracias familia por su apoyo todos estos años

Adrián Marañón
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Timothy Roland Marshall
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Cole Davis Martin
"I have fought the good fight, I have finished the race, I have kept the faith" - 2 Timothy 4:7

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Chelsey Denise Mcalpin
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Edward Ivor McCray
share your victory

#ASUGrad
#FultonGrad
#ASUEngineering
To my family and friends: I couldn't have done this without your love, support and encouragement. Thanks for making my dream come true! Love, Kymberli

Kimberly Frances McGuinness
McKeand Family,

Thank you for helping me achieve my goals. Without your support and motivation, I would not be the man that I am today.

Love,

Brady Lawrence McKeand
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Jessica Reyne McLean
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Justin Merritt
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Joshua Adam Michalak
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Jace Robert Moller
share your victory 🐦

#ASUGrad
#FultonGrad
#ASUEngineering
For the LORD gives wisdom: out of His mouth comes knowledge & understanding! Prov. 2:6
Thank You Jesus!

Thanks Mom & Dad
Steve, Beq, Zab, Es, Maasa!

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Amanda Ray Moore
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Emily Ann Murphy
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Devin Edwin Lee Murray
Sustainable Soil Improvement via Abiotic Carbon Dioxide Sequestration

Stephen Hermens, Chemical Engineering
Mentor: Dr. Hamdallah Bezeit, Senior Research Scientist
School of Engineering of Matter, Transport, and Energy

Introduction
This study was a combination of previous research towards an understanding of the potential for carbon dioxide sequestration in soil. Previous experiments have shown that the addition of calcium hydroxide to the soil can enhance the soil's CO2 absorption capacity. This phenomenon is known as carbonation, where the CO2 in the air is absorbed by the soil to form calcium carbonate (CaCO3). The purpose of this research was to investigate the potential of using the residual CO2 produced in the sequestration processes as a source of material for building applications.

Materials Selection
- Figure 1: Silica gravel
- Figure 2: Kaolinite (Clay plate)
- Figure 3: Granite rock

Carbonation Procedure
Each aggregate was mixed with calcium hydroxide in equal parts. The dry components were then hydrated and mixed thoroughly, using just enough water to make a paste (typically the same weight of the calcium hydroxide). The mixture was placed into a cylindrical reactor and reacted at approximately 860 °F in a CO2 reactor for 24-48 hours. The calcium hydroxide in the samples will react in the following manner: Ca(OH)2 + CO2 → CaCO3 + H2O. This results in a CaCO3 matrix surrounding and binding the aggregate into a composite.

Results

Conclusions & Recommendations
- Portland cement is a very cost-effective and useful building material.
- However, Portland cement production results in approximately 5% of worldwide CO2 emissions.
- Could Portland cement usage be reduced with novel methods for soil improvement?

A boundary layer effect roughly 4 mm thick was noted on the surface of all carbonations. This corresponds with the issues noted in previous reactions on a smaller scale. Each reacted sample had a noticeable layer that would separate easily after drying. Excellent carbonation was achieved on the surface (outer layer).
I would like to thank my friends and family for helping me along the way, especially my Mom! Without her this dream would have never been possible.

Trevor John Murray
To my family: For all of the advice and wise words you’ve provided me throughout my life.

Thomas Joseph Myzia
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Zakieh Nafeh
share your victory

#ASUGrad

#FultonGrad

#ASUengineering
Because of these professors I am crossing this stage tonight. Abramson, Brewer, Liao, Chmouni, Patel, Calhoun, Berman, Solanki, Reddy, Grewal, Trimble

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to excel, to be respectful and loving.
Thank you for your love and care.
LOVE NICKY

Nicolas Neve
Thanks for the memories.

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Brittany Renee Ortiz
share your victory

#ASUGrad
#FultonGrad
#ASUengineering
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Andrew James Palmowski
thank you, my family!

Ethan Pan
Wildlife Strikes at Airports: What are the Contributing Factors?

B.J. Jones1 and H.L. Bateman2

1 Polytechnic School of Engineering, Arizona State University
2 College of Science, Arizona State University

Introduction & Objectives

A review of the literature is presented, which is based on what has been written about wildlife strikes at airports and what has been written about wildlife at airports. The study examines the occurrence of wildlife strikes at airports and the factors that contribute to these strikes. The study also examines the relationship between wildlife strikes and the environment and the effects of the environment on wildlife strikes.

Results

- Figure 1: Graph of wildlife strikes at airports from 2010 to 2015
- Figure 2: Map of wildlife strikes at airports
- Figure 3: Pie chart of wildlife species involved in strikes
- Figure 4: Bar graph of wildlife species involved in strikes
- Figure 5: Graph of wildlife strikes by month
- Figure 6: Graph of wildlife strikes by year
- Figure 7: Graph of wildlife strikes by airport
- Figure 8: Graph of wildlife strikes by state

- Wildlife data were generated from Federal Aviation Administration (FAA) and Federal Airports (FA). The data were collected from 2010 to 2015.
- The study examined the occurrence of wildlife strikes at airports and the factors that contribute to these strikes.
- The study also examined the relationship between wildlife strikes and the environment and the effects of the environment on wildlife strikes.

Conclusions

- Wildlife strikes at airports are a serious problem and need to be addressed.
- The study found that wildlife strikes are more common during the winter months.
- The study also found that wildlife strikes are more common at airports with higher wildlife populations.

Appendix

- Wildlife data were generated from Federal Aviation Administration (FAA) and Federal Airports (FA).
- The data were collected from 2010 to 2015.
- The study examined the occurrence of wildlife strikes at airports and the factors that contribute to these strikes.
- The study also examined the relationship between wildlife strikes and the environment and the effects of the environment on wildlife strikes.
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Antonio Perez-Diaz
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Joshua Perkins
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JoAnne Pete-Deschenie
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Timothy Daniel Peterson
share your victory

#ASUGrad
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#ASUengineering
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Kory Ray Pottorff
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Prinsen family - Ryan

Ryan Thomas Prinsen
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Devinne Ramirez
Inorganic Coated Polypropylene Separators for Lithium Ion Batteries

Paul McAfee, Chemical Engineering
Mentor: Dr. Jerry Y.S. Lin, Regents Professor
School for Engineering of Matter, Transport and Energy

Research Objective: To improve the durability of lithium ion battery separator membranes while maintaining or improving cycle performance

Li-Ion Battery Background
- Higher energy density and operating voltage than other secondary batteries
- Significantly lower self-discharge rate (3% / month)
- $300 billion growing industry: personal electronics and electric / hybrid cars

Industry Standard: Polypropylene (PP) Separators

Pros:
- Adequate cycle performance

My Work
- Coated PP Separators in 2 Inorganic, Membranes
- A.L. Mesoporous gamma-alumina (AE), A3, A11
- R.T. Mesoporous silica-stabilized ceria (YSZ1, YSZ2, YSZ3)
- Control 2 Pure PP separator (PP1, PP2)

Built and Evaluated Batteries
- Assembled single cell with anode, cathode and electrolyte
- Performed constant current/constant voltage cycle test
- Determined discharge capacity over multiple cycles

Interpretation of Results

- Poor wetting of inorganic membrane layers hindered electrolyte diffusion
- Low porosity of YSZ provided additional resistance to conventional diffusion

Wettability of various separator surfaces characterized by increase in drop size over time

Paul McAfee
Paul McAfee
Dear Mom & Dad,
I want to thank you for your continued support and encouragement during my time here at ASU. I could not have done this without you!

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Christopher Raupp
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Jacob Andrew Reber
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Christopher Edward Recher
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Tyler Joseph Reeves
share your victory 🦅

#ASUGrad
#FultonGrad
#ASUengineering
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Kyle McClure Reilly
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Q. How do CS students not drown?
A. They use floats.

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Matthew T. Salazar
share your victory 🐦

#ASUGrad
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#ASUengineering
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Aman Sharma
share your victory

#ASUGrad
#FultonGrad
#ASUengineering
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Aaron S. Sidhu
Synthesis and Structural Properties of FAU-Type Zeolite Prepared with Fly Ash

Francesco Ruta, Civil Engineering
Mentor: Narayanan Neithalath, PhD
School of Sustainable Engineering and the Built Environment

INTRODUCTION

Zeolites are a broad class of minerals, which include faujasite (FAU) as its most common form. The chemical formula for faujasite is FAU: $\text{FAU} = (\text{SiO}_2)_{n} (\text{Al}_2\text{O}_3)_{m} (\text{H}_2\text{O})_{p}$. The term “zeolite” comes from the Greek word “zeolite,” meaning “boiling water.” Zeolites are known for their unique properties, such as high surface area, thermal stability, and sorption capacity.

FAU-type zeolites are particularly useful in various applications, including water treatment, oil refining, and catalysis. The synthesis of these materials typically requires an ideal balance of reactant ratios to achieve the desired crystalline structure.

In this study, the synthesis of FAU-type zeolite was attempted using fly ash as a precursor. Fly ash is a byproduct of coal combustion and is rich in alumina and silica, making it a suitable material for zeolite synthesis. The Fly Ash composition is discussed in detail in the introduction.

METHODOLOGY

The synthesis of the FAU-type zeolite was conducted using a modified procedure from a previous study. The methodology section provides a detailed description of the experimental setup, including the reaction conditions, precipitator, and aging conditions.

RESULTS

The resulting crystals were characterized using X-ray diffraction (XRD), scanning electron microscopy (SEM), and energy-dispersive X-ray spectroscopy (EDS). The results showed that the zeolite crystals obtained were of the desired FAU-type.

DISCUSSION

The characterization results confirmed the successful synthesis of the FAU-type zeolite. The text discusses the implications of these results for potential applications in the field of zeolite research and development.

CONCLUSION

The synthesis of FAU-type zeolite from fly ash was successfully demonstrated in this study. The methodology and results provide a basis for further research into the use of fly ash as a precursor for the synthesis of zeolites.

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#FultonGrad
#ASUengineering
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Logan Rex Taysom
share your victory #ASUGrad #FultonGrad #ASUengineering
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Sarah Elizabeth Toews
Solution-Cast Membranes for Wastewater Recovery: A New Chemical Resistant Nanocomposite

Sofia Herrera, Chemical Engineering
Mentor: Dr. Mary Laura Lind, Assistant Professor
School of Engineering of Matter, Transport and Energy

Abstract

The research goal is to create a membrane with an impermeable polymer layer that can withstand very acidic environments but still be used to purify water. Nanoparticles called zeolites act as a water selective pathway through the impermeable layer and allow water to flow through the membrane. If this research is successful, many more water sources can be tapped since the membranes will be able to withstand harsh conditions.

Research Methods

The research has been focused on the bottom hybrid research. Spin coating at 4000 rpm with polyacrylonitrile proved to make the most permeable and thinnest films. This was applied to new supports to try to make a more consistent film.

Results

- The larger pores of new supports (nylon and polycarboxylate) form consistent films.
- An increase in polymer and lower spinning rate were used to improve the coverage of the support as well as the use of a filler material.
- The zeolite components were well anchored to the support and as the amount of polymer used increased.

Future Plans

The membrane properties will be further investigated.
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Lina Melissa Villa
share your victory 🐦

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Thank you Mom and Dad for the love and support the past four years. I couldn't have done it without you guys!

Andrew Joseph Villareal
Thank you for all your support.

Sandeep Gautam Vora
I couldn't have done it without your constant support. Love Adri

Adri Shelton Walker
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Dylan Chase Walker
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Christopher James Walmsley
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Connor Jeffrey Walther
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Nader Warrayat
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Reda Warrayat
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Kevin Westgard
ASU has provided the best 4 years of my life. Thank you Mom, Dad, Jim & Jill for your unconditional love and support! I DID IT!

Erika Marie White
share your victory

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To my mother: thank you for helping me persevere through illnesses and failures. I hope you're as proud as I am grateful.

James Phillip White
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Angela Marie Williams
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Micah Teresa Windsor
Finally done. Thank you God and thank you everyone who has been there for me.

Jang Hoon Won
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Thomas Joel Wong
Aero Pirates Abroad! Keep the cider flowing!

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Tanner Lee Wright
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Brian James Wyatt
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Julio Cesar Zavala
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Christopher Thomas Zeigler
share your victory 🦅

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Thank you to my amazing wife, Angela, my beautiful son, Ashton and the greatest parents, William & Lana. Would not be here without U! I Love you all!!

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-WE DID IT!

Jeremy Michael Zinkofsky