

Personal details

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ORCID Profile

Education

09/1985 until 11/1989	Primary school & High School 106. Oberschule Dresden, Germany
12/1989 until 07/1990	High School Rheingau – Gymnasium Geisenheim, Germany
09/1990 until 07/1998	High School Staatliches Gymnasium Nieder – Olm, Germany

Internships and Service

11/1998 until 09/1999	<p>German Armed Forces 2nd Stabs- and Fernmelderegiment 310 Koblenz, Germany</p>
09/1999 until 12/1999	<p>Internships Winery Friedrich Bastian, Bacharach, Germany</p>
12/1999 until 04/2000	Sparkling-wine Manufacturer Georg Geiling GmbH Bacharach und Goldhand-Sparkling-wine Cellars Mainz, Germany
05/2000 until 07/2000	Rhenser Mineral Waters, Blaue Quellen AG, Rhens, Germany
08/2000 until 09/2000	Paulaner Brewery GmbH & Co.KG, Munich, Germany
01/2002 until 03/2002	Kaapzicht Wine Estate, Stellenbosch, South Africa
07/2002 until 08/2002	WILD Flavors Berlin GmbH & Co. KG, Berlin, Germany
08/2004 until 01/2005	Eichbaum Brewery AG, Mannheim, Germany
02/2005 until 03/2005	Kaapzicht Wine Estate, Stellenbosch, South Africa

Academic Education

10/2000 until 02/2005	<p>Engineering program Viticulture, Enology and Beverage Technology Hochschule Geisenheim University, Germany Degree: Engineering Diploma</p> <p>Thesis at the Institute of Microbiology and Biochemistry „Comparative metabolism analysis in the cell cycle of wine and beer yeast (<i>Saccharomyces cerevisiae</i>) using Flow Cytometry”</p>
10/2003 until 07/2004	<p>Undergraduate program Viticulture and Enology University of California, Davis, CA, USA</p>
09/2008 until 04/2012	<p>PhD program Microbiology and Wine Science Johannes Gutenberg University Mainz, Germany „Enological factors influencing the formation of bacterial off-flavors“ Degree: Dr. rer. nat. (magna cum laude)</p>

Professional Experience

01/2019 until now	<p>Director Viticulture and Enology Research Center, California State University, Fresno, CA</p> <p>Administrative and research leadership within the Department of Viticulture and Enology</p>
01/2017 until 12/2018	<p>Assistant Professor Fermentation Sciences, Appalachian State University, Boone, NC</p> <p><u>Lectures and Labs:</u> Introduction to Fermentation Science, Sensory Science, Viticulture, Wine Production and Analysis, Fermentation Biotechnology, Fermented Beverages of the World, Social Implications of Fermented Beverages, Advanced Analyses of Food and Beverages, Fermented Meat and Dairy, Facility Design and Operations, Reading and Writing in Fermentation Sciences</p>
06/2017 until 09/2018	<p>Director of the Fermentation Sciences Program, Appalachian State University, Boone, NC</p> <p>Responsible for general operations of the academic program and the transition into a department</p>
11/2013 until 12/2016	<p>Lecturer Fermentation Sciences, Appalachian State University, Boone, NC</p> <p><u>Lectures and Labs:</u> Intro Lab General Chemistry, Introduction to Fermentation Science, Sensory Science, Viticulture, Wine Production and Analysis, Biofuels and Bioprocessing, Fermented Beverages of the World, Social Implications of Fermented Beverages, Fermented Meat and Dairy</p>
09/2005 until 11/2013	<p>Laboratory Manager, wine chemistry lab at the DLR Rheinpfalz, Weincampus Neustadt, Germany</p> <p>Responsible team leader, supervision of research projects, interns and students (B.Sc. and MS. theses)</p>

Additional Qualification

03/2003	<p>Seminar: Quality Management Systems and Internal Audits</p> <p>German Society for Quality, Wiesbaden, Germany</p>
06/2006	<p>Seminar: Supervision of Analytical Systems</p> <p>Appl-Systems, Herrsching, Germany</p>
05/2007	<p>Seminar: Accreditation of Analytical Laboratories (EN/ISO 17025:2005)</p> <p>Klinkner & Partner, Inhouse training DLR Rheinpfalz, Neustadt, Germany</p>
02/2009	<p>Workshop: Adobe Creative Suite (Photoshop, InDesign, Illustrator)</p> <p>DBB Academy, Berlin, Germany</p>
03/2009	<p>Seminar: Safety in Analytical Laboratories</p> <p>Unfallkasse Rheinland-Pfalz, Andernach, Germany</p>
03/2010	<p>Seminar: Measurement Uncertainty of Analytical Methods</p> <p>Aufsichts- und Dienstleistungsdirektion, Koblenz, Germany</p>

Lectures and Consulting as Adjunct Faculty

10/2005 until 11/2013	<p>Lectures biochemistry, microbiology of wine and chemical analysis</p> <p>School for Viticulture and Enology at the DLR Rheinpfalz, Neustadt, Germany</p>
08/2009 until 11/2013	<p>Lectures and Labs wine chemistry and microbiology in the B.Sc. program Viticulture and Enology</p> <p>DLR Rheinpfalz, Weincampus Neustadt, Germany</p>
08/2012 until 12/2013	<p>External expert for the European Space Agency (ESA), Paris, France</p> <p>Yeast expert "Potential interest of microbial food for crewed missions"</p>

Awards and Scholarships

10/2001 until 07/2002

10/2003 until 07/2004

2017

2018

Full Scholarship of the Foundation of the German Economy

Full Scholarship of the Flossfeder Foundation

Undergraduate program at the University of California, USA

Nominated for the Richard N. Henson Outstanding Advisor Award

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Computer skills

MS Office, SigmaPlot, XLSTAT, SPSS, Adobe Software (Photoshop, Illustrator, InDesign), EndNote, various laboratory and chromatography software

Languages

German

English fluently

Latin Latinum

Spanish basic

Scientific Methods

Various analytical methods for wine and other beverages, e.g. GC, HPLC, MIR and UV-Spectroscopy and enzymatic analyses

Statistics: Regressions, Analysis of Variance, Principal Component Analysis, Canonical Variate Analysis, connection between chemical analysis and sensory by Partial Least Square Regression

Microbiological methods, e.g. microscopy, PCR, Flow Cytometry, electrophoresis

Professional Memberships

Association of German Enologists (Bund Deutscher Oenologen), since 2005

American Society for Enology and Viticulture, since 2008

American Chemical Society, since 2015

Leave No Trace Center for Outdoor Ethics, since 2017

American Society for Horticultural Science, since 2019

Books

Sommer, S. (2012). „Oenologische Einflussfaktoren auf die Bildung bakteriell induzierter Weinfehler.“ Publisher Cuvillier Verlag Göttingen, ISBN 978-3-95404-099-5.

Sommer, S. (2013). Praktiker-Handbuch der Weinanalytik. Mainz, Fachverlag Dr. Fraund GmbH, ISBN 978-3-921156-85-8.

Publications

- Sommer, S. (2007). "Schnelltestsysteme zur praktischen Betriebskontrolle." Das Deutsche Weinmagazin 21: 30-33.
- Sommer, S. (2007). "Die Gläserne Hefe." Das Deutsche Weinmagazin 22: 28-31.
- Sommer, S. (2007). "Die Gläserne Hefe II." Das Deutsche Weinmagazin 23: 16-19.
- Sommer, S. (2007). "Die richtige Probenvorbereitung bei Kelleranalysen - Manchmal ist weniger mehr." Das Deutsche Weinmagazin 24: 25-27.
- Sommer, S. (2007). "Im Test: RQeasy Malic zur BSA-Kontrolle." Der Deutsche Weinbau 18: 28-31.
- Sommer, S. (2008). "Reflektquant für Essigsäure?" Der Deutsche Weinbau 16-17: 24-26.
- Sommer, S. (2008). "Probenvorbereitung bei Kelleranalysen." Der Deutsche Weinbau 24: 20-21.
- Sommer, S. (2008). "Tipps zum Bentoniteinsatz und zum Bentonitbedarf." Der Deutsche Weinbau 25-26: 46.
- Schandelmaier, B. and S. Sommer (2009). "Spontangärung: Sicherheit durch Reinzuchthefen." Der Deutsche Weinbau 20: 34.
- Sommer, S. (2010). "Eiweißstabilität mit Bentonit - Mögliche Ursachen für erhöhten Schönungsbedarf." Das Deutsche Weinmagazin 12: 32-35.
- Herr, P. and S. Sommer (2010). "BSA - Simultan, Spontan und Co." Das Deutsche Weinmagazin 16/17: 18-24.
- Sommer, S. (2011). „Das Mysterium des Bentonitbedarfs“ Schweizer Zeitschrift für Obst- und Weinbau 147(6): 6-9.
- Herr, P., S. Sommer und U. Fischer (2011). "Réduction de la teneur en amines biogènes avec de la bentonite." Revue des Oenologues 140: 19-21.
- Sommer, S. (2011). „Mögliche Ursachen für Gärstörungen“ Das Deutsche Weinmagazin 8: 30-33.
- Sommer, S. (2011). „Gärstörungen: Die Suche nach den Schuldigen.“ Der Deutsche Weinbau 14: 30-33
- Sommer, S. (2011). „Bakteriell induzierte Fehltonen in Wein.“ Das Deutsche Weinmagazin 19: 11-17
- Mink, R., Sommer, S., Degen, S., Scharfenberger-Schmeer, M. (2012). „Biologischer Säureabbau und Diacetyl.“ Das Deutsche Weinmagazin 16/17: 35-39.
- Sommer, S. (2012). „Der Luftsterilisator OENOCAT-30; Eine Alternative bei der Holzfasskonservierung?“ Das Deutsche Weinmagazin 20: 34-36.
- Herr, P., S. Sommer und U. Fischer (2012). Concentration of biogenic amines in lees - absorption by yeast cell walls or amplified bacterial activity? Oeno 2011, Actes de colloques du 9e symposium international d'oenologie de Bordeaux. Paris, Dunod: 411-415.
- Sommer, S., D. Süß und D. Durner (2012). "Möglichkeiten und Grenzen der Metallstabilisierung in Wein." Das Deutsche Weinmagazin 25/26: 30-34.
- Sommer, S. (2013). "Trübungen in Most und Wein." Das Deutsche Weinmagazin 2: 18-21.
- Sommer, S. (2013). "Charakterisierung der Rotweinfarbe mittels FTIR." Der Deutsche Weinbau 6: 28-31.
- Mink, R., Sommer, S., Kölling, R., Schmarr, H.-G., Baumbach, L., & Scharfenberger-Schmeer, M. (2014). Diacetyl reduction by commercial *Saccharomyces cerevisiae* strains during vinification. Journal of the Institute of Brewing, 120(1): 23-26. doi: 10.1002/jib.106.

Mink, R., Sommer, S., Kölling, R., Schmarr, H.-G., & Scharfenberger-Schmeer, M. (2014). Time course of diacetyl formation during vinification with *Saccharomyces cerevisiae* and *Oenococcus oeni* co-cultivation. Australian Journal of Grape and Wine Research, 20(2): 194-198. doi: 10.1111/ajgw.12076.

Mink, R., Kölling, R., Sommer, S., Schmarr, H.-G., & Scharfenberger-Schmeer M. (2015). Diacetyl Formation by *Oenococcus oeni* During Winemaking Induced by Exogenous Pyruvate. American Journal of Enology and Viticulture, 66(1): 85-90. doi: 10.5344/ajev.2014.14056.

Sommer, S., Wegmann-Herr, P., & Fischer, U. (2015). Correlating the Demand for Bentonite in Wine with Ambient Data and Weather Anomalies. Journal of Wine Research, 26(1): 29-39. doi: 10.1080/09571264.2014.993752.

Sommer, S., Herr, P., Wacker, M., & Fischer, U. (2015). Rationale for a Stronger Disposition of Chardonnay Wines for Stuck and Sluggish Fermentation. South African Journal of Enology and Viticulture, 36(1): 180-190.

Sommer, S., Dickescheid, C., Harbertson, J.F., Fischer, U. & Cohen, S.D. (2016). Rationale for Haze Formation after Carboxymethyl Cellulose (CMC) Addition to Red Wine. Journal of Agricultural and Food Chemistry, 64(36): 6879-6887. doi: 10.1021/acs.jafc.6b02479.

Sommer, S.; Wegmann-Herr, P.; Wacker, M.; Fischer, U. (2018). Influence of lysozyme addition on hydroxycinnamic acids and volatile phenols during wine fermentation. Fermentation, 4(1), 5. doi:10.3390/fermentation4010005.

Taubman, B.; Sommer, S.; Edwards, J.; Laws, T.; Hamm, L.; Frank, B.A. (2018). Microbial gluten reduction in beer using lactic acid bacteria and standard process methods. MBAA Technical Quarterly, 55(1): 17-22.

Sommer, S.; Sommer, S.J.; Cohen, S.D. (2018). Proposal of the Head-Heart-Base technique (HHB) as an innovative method to describe and evaluate the aroma profile of wine and cider. Journal of Wine Research, 29(3): 204-219. doi:10.1080/09571264.2018.1472072.

Sommer, S.; Cohen, S.D. (2018). Comparison of different extraction methods to predict anthocyanin concentration and color characteristics of red wines. Fermentation, 4(2), 39. doi:10.3390/fermentation4020039.

Sommer, S.; Weber, F.; Harbertson, J.F. (2019). Polyphenol-Protein-Polysaccharide Interactions in the Presence of Carboxymethyl Cellulose (CMC) in Wine-like Model Systems. Journal of Agricultural and Food Chemistry, 67(26): 7428-7434. doi: 10.1021/acs.jafc.9b00450.

Zimdars, S.; Schrage, L.; Sommer, S.; Schieber, A.; Weber, F. (2019). Influence of glutathione on yeast fermentation efficiency under copper stress. Journal of Agricultural and Food Chemistry, 67(39): 10913-10920. doi: 10.1021/acs.jafc.9b03519.

Sommer, S. (2020). Monitoring the Functionality and Stress Response of Yeast Cells using Flow Cytometry. Microorganisms, 8: 619. doi: 10.3390/microorganisms8040619.

Sommer, S.; Tondini, F. (2021). Sustainable Replacement Strategies for Bentonite in Wine Using Alternative Protein Fining Agents. Sustainability, 13(4): 1860. doi:10.3390/su13041860.

Poster and Conference Presentations

Sommer, S. (2006). Gibt es ein Terroir der Hefen? – Handschrift der Spontangärung. 59th Wine Growers Convention Palatinate, Neustadt/Weinstraße, Germany

Fischer, U., Briegel N., Wolf, S., Wolz, S., Sommer, S., Rauhut, D., Grossmann, M. (2007). Spontangärung – gibt es ein Terroir der Hefen?, 2nd International Symposium Organic Wine, Stuttgart, Germany, Proceedings pages 122 – 133.

Sommer, S. and K.-J. Hutter (2008). Monitoring Fermentation Performance and Stress Response of Wine Yeast (*Saccharomyces cerevisiae*) using Flow Cytometry. DGfZ & ESCCA Joint Meeting 2008. Bremen, Germany.

Sommer, S. and K.-J. Hutter (2008). Monitoring the Functionality of Yeast Cells Using Flow Cytometry. DGfZ & ESCCA Joint Meeting 2008. Bremen, Germany.

- Sommer, S. and K.-J. Hutter (2008). Monitoring the Functionality of Yeast Cells Using Flow Cytometry. 59th Annual Meeting American Society of Enology and Viticulture 2008. Portland, OR, USA.
- Sommer, S., Morsch, S., Eßers, M. (2009). Hefedynamik bei der Spontangärung – Einfluss auf Gärverlauf und Sensorik. 62nd Wine Growers Convention Palatinate, Neustadt/Weinstraße, Germany.
- Fischer, U., Bauer, A., Sommer, S., Ganss, S. (2009). Impact of Yeast and Terroir diversity on the sensory properties of German Riesling. Sensory Development of Cool-Climate Varietals During Wine Fermentation, Proceedings pages 13 – 26, Geisenheim, Germany.
- Sommer, S., S. Morsch, et al. (2009). Effect of Yeast Composition and Vinification Strategy on Sensory Perception and Flavor Composition. 60th Annual Meeting American Society of Enology and Viticulture, Napa, CA, USA.
- Sommer, S., Morsch, S., Eßers, M. (2009). Hefedynamik bei der Spontangärung – Einfluss auf Gärverlauf und Sensorik. 13th Enology Symposium September 3, Neustadt/Weinstraße, Germany.
- Sommer, S. (2010). Bentonit im Wandel der Zeit – Warum variiert der Schönungsbedarf?. 63rd Wine Growers Convention Palatinate, Neustadt/Weinstraße, Germany.
- Herr, P., S. Sommer, et al. (2010). Einfluss verschiedener Mostparameter und kellerwirtschaftlicher Faktoren auf die Bildung biogener Amine in Wein. International IVIF-Congress 2010, Intervitis/Interfructa, Stuttgart, Germany.
- Herr, P., S. Winterling, et al. (2010). Bentoniteinsatz als kurative Strategie zur Minimierung des Amingehaltes in Wein. 60th German Viticulture Convention during Intervitis/Interfructa 2010. Stuttgart, Germany, Poster presentation.
- Sommer, S., P. Herr, et al. (2010). Einfluss von Mostzusammensetzung und Gärstrategie auf die Bildung bakteriell induzierter Fehltonen in Wein. International IVIF-Congress 2010, Intervitis/Interfructa, Stuttgart, Germany.
- Sommer, S. (2010). Model to Predict the Demand for Bentonite in Wine Based on Ambient Data and Weather Anomalies. 7th International Cool Climate Symposium (ICCS), Seattle, WA, USA.
- Sommer, S. (2010). Bentonit im Wandel der Zeit – Warum variiert der Schönungsbedarf?. 14th Enology Symposium, Neustadt/Weinstraße, Germany.
- Sommer, S., Herr, P., Wacker, M., Degen, S., Fischer, U. (2011). Analyse möglicher Ursachen für Gärstörungen bei der Rebsorte Chardonnay. 16th International Enology Symposium, Bozen, Italy.
- Sommer, S., Herr, P., Wacker, M., Schmarr, H.-G., Fischer, U. (2011). Influence of Grape Composition and Fermentation Strategy on the Formation of Bacterial Off-Flavor in Wine. 62nd ASEV National Conference, Monterey, CA, USA.
- Sommer, S., Herr, P., Fischer, U. (2012). Bakterielle Weinefehler – Einfluss von Traubenhaltstoffen und Gärführung. 65th Wine Growers Convention Palatinate, Neustadt/Weinstraße, Germany.
- Sommer, S., Suess, D., Dachtler, W., Durner, D., Fischer, U. (2012). Factors Influencing Heavy Metal Stabilization with Potassium Hexacyanoferrate (II), Divergan HM, and Phytic Acid. 63rd ASEV National Conference, Portland, OR.
- Sommer, S., Keiser, J., Fischer, U. (2013). Ergebnisse und Durchführung eines Ringtests zur betrieblichen Mostanalyse mittels FT-MIR. 61st German Congress for Viticulture and Enology, Intervitis/Interfructa, Stuttgart, Germany.
- Sommer, S., Mink, R., Degen, S., Scharfenberger-Schmeer, M. (2013). Production and Accumulation of Diacetyl in White Wine by Yeast (*S. cerevisiae*) and Bacteria (*O. oeni*), 64th ASEV National Conference, Monterey, CA.
- Mink, R., Kölling, R., Sommer, S., Schmarr, H.-G., & Scharfenberger-Schmeer, M. (2014). Pyruvat induzierte Diacetylbildung während der Weinbereitung. 54th Annual Meeting of the Research Circle for German Viticulture (FDW), Neustadt an der Weinstrasse. Germany.
- Willberger, I., Sommer, S., & Scharfenberger-Schmeer, M. (2014). Vermeidung von Gärstörungen in Wein durch frühzeitige Erkennung mittels Flusszytometrie. 54th Annual Meeting of the Research Circle for German Viticulture (FDW), Neustadt an der Weinstrasse. Germany.

- Sommer, S., Dickescheid, C., & Fischer, U. (2014). Strategies to Prevent Turbidity Problems After the Addition of CMC to Red Wines. 65th ASEV National Conference & 39th ASEV Eastern Section Annual Meeting, Austin, TX.
- Sommer, S., Harbertson, J.F. & Cohen, S.D. (2015). Interactions between Polyphenols, Proteins, and Polysaccharides in Wine-like Model Systems. 66th ASEV National Conference, Portland, OR.
- Sommer, S., Sommer, S.J., & Cohen, S.D. (2015). Proposal of the Head-Heart-Base Technique (HHB) as an Innovative Method to Describe and Evaluate the Flavor Profile of Wine. 66th ASEV National Conference, Portland, OR.
- Sommer, S. (2016). Sustainable Agricultural and Water Management. 5th Annual Sustainability Symposium and Expo, Leland NC.
- Sommer, S., Keiser, J. & Cohen., S.D. (2016). Rapid and Matrix Independent Method to Analyze Anthocyanins in Red Grape Juice and Wine by FT-MIR. 67th ASEV National Conference, Monterey, CA.
- Sommer, S., Wegmann-Herr, P. & Cohen. S.D. (2016). Influence of Lysozyme Addition on Hydroxycinnamic Acids and Volatile Phenols during Yeast and Bacteria Co-Fermentation. 67th ASEV National Conference, Monterey, CA.
- Sommer, S. (2016). Stuck Fermentation Management: Causes, Prevention, and Resolution. 5th Annual Southeastern United Grape and Wine Symposium, Dobson, NC.
- Sommer, S. & Cohen. S.D. (2017). Comparison of Different Extraction Methods to Predict Anthocyanin Concentration and Color Characteristics of Red Wines. 68th ASEV National Conference, Bellevue, WA.
- Sommer, S., Harbertson, J.F., & Cohen, S.D. (2017). The Physical Stability of Wine: Polyphenol-Protein-Polysaccharide Interactions. SERMACS 2017, Charlotte, NC.
- Sommer, S. (2018). Strategies for Color Extraction and Stabilization in Red Wine. Michigan Orchard and Vineyard Show, Traverse City, MI.
- Sommer, S. (2018). Important Factors That Affected Wine Quality in 2017. NC Winegrowers Association Annual Meeting, Winston-Salem, NC.
- Sommer, S., Janz, J. & Suess, D. (2018). Implementation of a Quick Test to Control the Removal of Iron and Copper from Wine. 69th ASEV National Conference, Monterey, CA.
- Sommer, S. (2019). Microbial Control and Spontaneous Fermentation. Michigan Orchard and Vineyard Show, Traverse City, MI.
- Sommer, S., Weber, F., & Harbertson, J.F. (2019). Interactions of Polymeric Compounds in Wine and Potential Benefits of Polysaccharide Addition. 70th ASEV National Conference, Napa, CA.
- Loyd, J., Morales, G., Conmy, W., Davis, J., Sommer, S., and Van Zyl, S. (2019). Influence of Bunch Rot on Fermentation Kinetics and Sensory in Chardonnay and Petite Sirah. 70th ASEV National Conference, Napa, CA.
- Loyd, J., Davis, J., Conmy, W., Van Zyl, S., and Sommer, S (2019). Influence of Bunch Rot on Fermentation Kinetics in Chardonnay and Petite Sirah. ASHS Annual Conference, Las Vegas, NV.
- Conmy, W., Loyd, J., Davis, J., Van Zyl, S., and Sommer, S (2019). Rot Estimation Dynamics in Gondolas, ASHS Annual Conference, Las Vegas, NV.
- Sommer, S. (2020). Potassium Tartrate Stability: Strategies for Stabilizing Potassium Tartrate Salts in White, Red and Rose Wines. Unified Wine and Grape Symposium, Sacramento, CA.
- Sommer, S., Harbertson, J.F., Weber, F., and Cohen S.D. (2020). Polysaccharides in Wine Production: CMC & Mannoproteins. Laffort RENDEZ-VOUS 2020, online COVID-19 edition.
- Sommer, S., Harbertson, J.F., Weber, F., and Cohen S.D. (2020). Polysaccharides in Wine Production. Fresno State Grape Day 2020, online webinar August 4, 2020.
- Sommer, S., Anderson, A.F., Fricke, L., Larsen, L. & and Weber, F. (2021). Effect of Polysaccharide Extraction and Addition Strategies on Color Stability and Pigment Formation in Red Wines. 72nd National ASEV Conference, virtual event.

Sommer, S. & Tondini, F. (2021). Sustainable Replacement Strategies for Bentonite in Wine using Alternative Fining Agents, 72nd National ASEV Conference, virtual event.

Sommer, S. (2021). Flow Cytometry to Monitor Yeast during Fermentation. AOAC International (Pacific Southwest Section), virtual event June 30, 2021.