

#### ...Serving Chemical Engineers Who Serve the World

## Mid-Michigan Section Newsletter

AIChE Mid-Michigan Section Mission: To provide opportunities to continuously develop our members professionally while working with the community to provide a positive view of science and engineering.

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#### Newsletter Highlights...

The Mid-Michigan Section has chosen its yearly scholarship winners. Read starting on page 6.

This month, the Mid-Michigan Section will hold its awards banquet with keynote speaker **Gary Homan** VP and Director of Marketing, Sales and Quality at Hemlock Semiconductor Corporation. See page 3.

The summer and fall are already filling up with events and courses: a planetarium visit on May 30, "Doc Choc," Excel VBA training, and more.

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### Words from the Chair...

I was sitting at the dinner table with my family just the other day and the kids were talking about what they wanted to do with the upcoming summer and time away from elementary school. As I listened, I thought back to my days as a child and how the summers seemed to last forever. However, that thought soon dissipated and was replaced by the realization that my entire summer was essentially accounted for... camping here, family reunion there, a trip to Pennsylvania, a niece's birthday, Boy Scout camp for the boys, maybe a business trip to Brazil... "Yep, the summer is shot" I thought to myself. Like last summer, and the one before it, the upcoming summer will probably pass me by in what will seem like a blink of an eye. Where does the time go? Have I slowed down or has the Earth starting spinning faster?

As I look back over the past year and the goals I had set for myself as chairperson, I realize I became victim of the very thing I was trying to focus my time on — the reduced amount of time for members to be active in the AIChE. Increased international travel for work, additional constraints in the office, more after-school activities for my children, and just general not enough time in the day used up the "free time" I thought I had. Excuses aside, I feel that I didn't accomplish as much as I personally wanted to accomplish as the chairperson of your section. However, the section did make some headway behind the scenes as we get ready to clean up some outdated membership information. And we had some good programs: presentations about the production of Hershey Kisses®, the future of BioDiesel, and the use of thermodynamics in simulations. We were able to take working demonstrations of science and engineering to over 400 children in the area through our classroom demonstrations program; we committed to sending two high school students to Michigan Tech for a week to explore the sciences; and, we selected a very promising student from Ludington as our college scholarship winner. All in all, not a bad year as the section collectively worked to fulfill our mission.

As you'll read in this newsletter, we have already made plans for a trip to Delta Planetarium at the end of May, have collaborated with the ACS, SPE, & ASM to bring the 2006 Turner Alfrey Visiting Professor to you in June, and have scheduled a presentation by "Doc Choc" in October to give us a working (and hopefully tasteful) overview of the world of chocolate. However, more work is to be done. We are looking at some personal development courses covering spreadsheet tools. We are exploring the possibility of offering some short courses in "the things you don't learn in engineering school." And last and definitely not least, we will continue to work to clean up our membership files, hopefully culminating in a survey to help the section better serve all the ChEs in the Mid-Michigan area.

As always, your comments and feedback are welcomed. And as a special request, please consider participating in a program or joining one of our committees. Involvement in many of our activities doesn't require much time at all — only a few hours during a particular time of the year.

David Tascarella

Mid-Michigan AIChE Section Chair

## Mid-Michigan AIChE to Hold Annual Awards Banquet

The American Institute of Chemical Engineers, Mid-Michigan Chapter cordially invites you to its annual awards banquet on Wednesday, May 24, 2006 featuring keynote speaker

# Gary Homan VP and Director of Marketing, Sales and Quality at Hemlock Semiconductor Corporation

Gary's presentation entitled "Hemlock Semiconductor Corporation: Expanding to meet Market Needs" will review the expansion activities at Hemlock Semiconductor Corporation (HSC), the world's largest manufacturer of hyper-pure polycrystalline silicon (polysilicon) used in semiconductor and solar applications. HSC is currently undergoing rapid expansion to meet the continuing growth in electronics and the rapid growth of solar cells used as an alternative energy source. A novel business model has been employed to support the high level of capital necessary for rapid growth while minimizing risk for HSC's shareholders. Concurrently, new technology and engineering challenges are being addressed to ensure HSC remains the world leader in polysilicon manufacturing and sales.

Come learn about an exciting industrial expansion in Mid-Michigan.

Gary joined Hemlock Semiconductor Corporation in 1999. He is responsible for HSC's sales, marketing and quality activities across all geographic areas. Prior to joining HSC, Gary was employed by Dow Corning Corporation for 27 years. He held positions in Research, Product Development, Finance, and Marketing. He is the inventor on 44 U.S. patents and is the author of numerous technical and marketing publications. Gary holds AAS and BS degrees in chemistry, and completed the Executive Program at the University of Michigan in 1988.

Gary and his wife, Margene, reside on Wixom Lake, north of Midland, Michigan. They have three children. In his leisure time he enjoys playing softball, golf, and fishing.

Date: Wednesday, May 24, 2006

Location: Ashman Court Hotel, 111 W. Main St., Midland, MI; 989-839-0500

Time: 5:30–6:00 p.m.: Social gathering with cash bar

6:00-7:00 p.m.: Dinner

7:00–7:45 p.m.: Keynote address 7:45–8:30 p.m.: Award presentations

Cost: \$20, no charge for AIChE volunteers and award recipients.

Please bring cash or check payable to Mid-Michigan AIChE to the dinner.

RSVP: Please RSVP to **Brett Birchmeier** (bbirchmeier@dow.com or 636-1916) by Friday, May 19.

## Joint Technical Society Dinner Meeting Scheduled

### SPE/ACS/ASM/AIChE Joint Technical Society Dinner Meeting Thursday, June 15, 2006



The 2006 MMI Turner Alfrey Visiting Professor

Prof. Robert K. Prud'homme, Director of the Engineering Biology Program and Professor in the Department of Chemical Engineering, Princeton University, Princeton, NJ 08544

#### GRAPHENE NANO SHEETS AS A NEW MATERIAL FOR POLYMER COMPOSITES

There has been considerable interest and activity in the area of nanoparticle-filled polymer composites because of the predicted enhancement in mechanical, electrical, and transport properties. Carbon nanotubes and clay nanosheets have been the most widely studied materials, but each has significant limitations. We present a new nanofiller based on completely exfoliated graphite sheets. The process for exfoliation will be described, as well as characterization of the resulting TEGO (thermally exfoliated graphite oxide). Surface areas of 1500 m²/g are obtained and aspect ratios on the order of 10⁴ (i.e., 10 microns/1 nm) are obtained. The electrically conductive sheets show a percolation threshold between 1-2 wt% when incorporated in a poly(methyl methacrylate) (PMMA) polymer matrix. This is in contrast to 7.5 wt% loading of conductive carbon black that must be added to obtain a similar level of conductivity. The elastic modulus versus temperature for a TEGO-filled PMMA composite shows an increase. But most significantly, the addition of just 0.25 wt% TEGO increases the softening temperature (or glass transition temperature Tg) from 95°C to 118°C. This change is unprecedented at this filler loading. The shift in Tg of the matrix polymer means that the TEGO is well enough dispersed so that "every" PMMA chain is influenced by the TEGO surface. Therefore, the bulk polymer properties are modified by very low loadings of TEGO.

**Date:** Thursday, June 15, 2006

Time: Social: 6:30 p.m.

Dinner: 7:00 p.m. Program: 8:00 p.m.

Location: Holiday Inn of Midland, 1500 W. Wackerly St., Midland, MI 48640, 989-631-4220

Cost: \$25.00 for SPE/ACS/ASM/AIChE members and guests

\$15.00 for students

**Reservations:** Reservations can be made via phone, fax, or eE-mail to **Dawn Wright** at MMI.

They must be received no later than Monday, June 12, 2006.

Phone: 989-832-5555, ext. 570, Fax: 989-832-5560

E-mail: wright@mmi.org

## Michigan Molecular Institute Offers Visiting Professor Course

## 2006 Turner Alfrey Visiting Professor Course

## COURSE 1033: STRUCTURE AND DYNAMICS OF COMPLEX, ASSOCIATING, NANO-SCALE SYSTEMS

Lecturer: Professor Robert K. Prud'homme, Director of the Engineering Biology Program

and Professor in the Department of Chemical Engineering, Princeton University

Place: Lecture Hall (Room 101), Michigan Molecular Institute, 1910 West St. Andrews Road,

Midland, MI 48640

**Time:** Formal lectures: Monday – Friday, June 12 - 16, 2006, 3:00 - 6:00 p.m.

Fee: There is no fee for auditors if they belong to organizations that are financial sponsors of

the Turner Alfrey Visiting Professor Program—Dow Chemical, Dow Corning, Saginaw Valley State University, Central Michigan University, Michigan State University, and Mid-Michigan Section of the SPE. For all others, a course fee of \$300 will be required

at registration. All participants must register.

**Registration:** Pre-registration is required one week in advance with the Registrar by calling (989) 832-

5555, ext. 555 or by e-mail at <u>registrar@mmi.org</u>.

#### **LECTURE TOPICS:**

Lecture 1 – Monday, June 12, 2006 – "Block Copolymer Mediated Nanoparticle Formation"

Lecture 2 – Tuesday, June 13, 2006 – "Polymer-Surfactant Interactions: Thermodynamics and Dynamics"

Lecture 3 – Wednesday, June 14, 2006 – "Self-Assembly in Non-aqueous Media Using Crystallinity"

Lecture 4 – Thursday, June 15, 2006 – "Single Sheet Graphene Nanocomposites"

Lecture 5 – Friday, June 16, 2006 – "Living Polymers: Self-assembling Worm-like Micelles"

More information on the 2006 Alfrey 2006 Turner Alfrey Visiting Professor lectures can be found at the MMI Web Site: http://www.mmi.org/mmi/standard/acads/index.html.



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Dial: 989.832.5555 Fax: 989.832.5560 Email: info@mmi.org Click: www.mmi.org

## Mid-Michigan Section Announces 2006 Scholarship Winner

Contributed by David Tascarella, Mid-Michigan AIChE Scholarship Committee Chair

The AIChE Scholarship is a four-year scholarship whose purpose is to promote the advancement of undergraduate engineering and to encourage students to enter the field of chemical engineering. The scholarship award totals \$2000, rewarding past academic performance as well as school and community involvement; not necessarily based on financial need.

This year, eight applications were received from the region covered by the Mid Michigan section of AIChE. We are pleased to announce that **Sara Kreinbrink**, from Ludington High School, was selected as this year's winner. Aside from demonstrating through her written essay a solid grasp of what chemical engineering is about, she has a 4.152 GPA and is ranked fourth in her class of 188 students. She is involved in numerous sports activities; including basketball, soccer, volleyball, and cross country. She plays the flute and piccolo for the high school band, choir, and at her church. She has shown leadership ability by chairing the American Red Cross blood drive, serving as Treasurer for the National Honor Society, as well as attending the Josten's Youth Leadership Conference and the National Catholic Youth Conference. Sara plans to enroll at the University of Michigan with hopes of obtaining an advanced degree in ChE.

Sara will be recognized and formally presented with the first of four checks at the Mid-Michigan AIChE annual awards banquet on May 24<sup>th</sup> at the Ashman Court Hotel in Midland, MI.



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## Mid-Michigan Section Selects 2006 MTUSYP Scholarship Winners

Contributed by Erin Lacher, MTUSYP Scholarship Committee Chair

The MTU Summer Youth Program Scholarship committee (Norm Lake, Megan McHenry, Stephanie Moore, Erik Ohare, Dennis Phillips, Rachel Wright, and Erin Lacher) is pleased to announce the recipients of the 2006 scholarships: Katherine Alexander and Allison Kruske. These two winners were chosen from 15 applicants based on their widespread involvement in activities, relative interest in the fields of science and engineering, and strength and creativity of their essays.

Katherine is a junior at Pinconning Area High School. She is very active in the National Honor Society and volunteers extensively with her time at numerous organizations, including the Grace A. Dow Memorial Library and the Midland Center for the Arts. Her love of math and science have led her to a strong interest in engineering, and she plans to attend the Chemical Engineering session at MTU to further solidify her future plans of majoring in chemical engineering in college.

Allison is a freshman at Bay City Western High School. She is involved in many activities, including pom pon squad, dance and track & field. She also serves as a role model for other students by being involved in SADD and Relay for Life. Allison is interested in engineering and science and has chosen to participate in the General Engineering session at MTU in order to learn more about the various types of engineering to begin defining a future career path.

Katherine and Allison will be honored at the Mid-Michigan AIChE annual awards banquet on May 24<sup>th</sup> at the Ashman Court Hotel in Midland, MI.

The Summer Youth Program is a one-week program at the MTU campus, which gives students an opportunity to explore careers and develop skills. The students will participate in laboratory, classroom, and field experiences in a selected career area. For details of the SYP, please visit its Web site at <a href="http://youthprograms.mtu.edu">http://youthprograms.mtu.edu</a>. This scholarship is specific to explorations in engineering and science and covers room, board, tuition, and a \$100 travel allotment. This is the 21<sup>st</sup> year MMAIChE has offered scholarships to the Summer Youth Program.



## **Mid-Michigan AIChE Education Outreach Activities**

Contributed by Katie Erikson and Christine Ringlein, Education Outreach Co-chairs

#### **Future City Competition**

In September, middle school students began work on the Future City Competition. It is a team-based program consisting of students, a teacher and an engineer mentor that challenges students to design a fully functioning city located in a time and place in the future. This year 13 members of AIChE volunteered to grade essays written for the Michigan-area Future City Competition. If you are interested in mentoring for this program next year please contact **Nancy Strodl** at 248-353-0735 x4152 or <a href="maintenance-nstrodle-esd-org/events/futurecity.htm">nstrodle-esd-org/events/futurecity.htm</a>. Web site: <a href="http://www2.esd.org/EVENTS/futurecity.htm">http://www2.esd.org/EVENTS/futurecity.htm</a>.

#### **Classroom Demonstrations**

The classroom demonstration program was held in conjunction with SPE again this year. On January 30<sup>th</sup>, 2006 a training session was held at Grace A. Dow Memorial Library that included general classroom information, contact information for the schools and demonstration information. Four demonstrations were performed at the training session and 20 people attended the meeting. Already this year, over 400 Mid-Michigan students have participated in classroom demonstrations given by AIChE/SPE members. At least six more demonstrations are planned for this school year. If you would like more information about this program or would like to volunteer please contact **Christine Ringlein** at <a href="mailto:christine.ringlein@dowcorning.com">christine.ringlein@dowcorning.com</a>.

## Delta College Planetarium Activity Scheduled for May 30

On May 30 at 7:00 p.m. Mid-Michigan AIChE has arranged for a family activity at the Delta College Planetarium and Learning Center in Bay City. The show will be geared towards elementary school kids, but it is enjoyable for all ages. The cost will be \$3 per person (adult or child) and you must arrive by 6:45 as no one will be allowed in after the show begins. For more information you can visit http://www.delta.edu/planet/ or contact Christine Ringlein at christine.ringlein@dowcorning.com or Katie Erikson at Katie.erikson@dowcorning.com. Directions to the planetarium can be found by clicking the link http://www.delta.edu/planet/map1.jpg. If you plan to attend **RSVP** please by May christine.ringlein@dowcorning.com to help us ensure we have the minimum required attendance.



Delta College Planetarium & Learning Center 100 Center Avenue Bay City, MI 48708

#### "Doc Choc" Chocolate Lecture Scheduled for Fall

Join "Doc Choc" (a.k.a. Patrick Fields, Ph.D.) this fall as he takes the Mid-Michigan AIChE on a journey through the world of chocolate, and see why Linnaeus named it *Theobroma* – "the Food of the Gods!" He will share a world of knowledge, much personal experience, and visual aids from his years of research and teachings on the subject. The program will start with informal discussion and photographic slides about many aspects of humankind's most complex natural flavors. This will include: what it is; where it comes from; our interaction with chocolate throughout the last 3000 years; its chemical make-up, discovery, history, and preparation; and some of the myths, fads, and quirky tales associated with one of the world's most popular substances. The second part will consist of CHOCOLATE TASTING! "Doc Choc" will bring a dozen or more different chocolates for you to taste and decide which is your favorite. This presentation has tentatively been scheduled for October 18, 2006. More details will follow.



Patrick F. Fields holds a Bachelors Degree in "Paleo-Plant Ecology" from the University of California at Davis, a Masters Degree in Paleontology from the University of California at Berkeley, and a Doctorate in Botany and Plant Pathology from Michigan State University. His research emphasis is on fossil plants from the Pacific Northwest! He is the immediate past president of the Michigan Botanical Club, the current president of the Michigan Botanical Foundation, and serves on the board of directors of other organizations that fund research and education on native plants of Michigan. Dr. Fields presently teaches courses in biology, botany, evolution, physical geography, and General Science for Non-Majors at Olivet College in Olivet,

MI. In his spare time, he gives lectures on chocolate, for the last five years has been teaching a spring adult education course on chocolate at the University of Michigan, and offers a free E-mail newsletter about chocolate. He may be reached at: <a href="mailto:PatrickFFields@aol.com">PatrickFFields@aol.com</a>.

## Mid-Michigan AIChE Officer Elections — Call for Nominations

Mid-Michigan AIChE officer nominations are now open! Programming in the local sections is only made possible by new leadership. Please send your nominations for the listed elected positions and committee chairs to **David Tascarella** (david.tascarella@dowcorning.com) You may self-nominate. For the elected positions, all nominees will be verified before voting.

#### **Elected Positions**

Chair-Elect
Treasurer
Secretary
Dow Chemical Director
Dow Corning Director
Director-at-Large

#### **Committee Chairs**

Programs
Education Outreach
Continuing Education
Section Historian
Fundraising
Newsletter
Webmaster
School Donations

For more information on service opportunities or questions regarding the activities of the Executive Committee please contact any officer found in the directory starting on page 12.

## Mid-Michigan AIChE to Offer Excel VBA Training Course

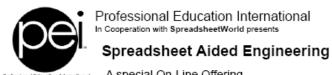
Contributed by Mike Durisin, Membership Chair

The Mid-Michigan Section of AIChE is sponsoring a Web-based Excel Visual Basic for Applications (VBA) training course. The training will be delivered over the Internet as two consecutive half-day morning sessions. Participants can view the course alone or with a group. The course has been tentatively scheduled for June 26-27. The cost for the course will be \$150 for AIChE members and \$200 for nonmembers. Please note that this training is separate and distinct from the Excel course recently organized by Doug Greminger of The Dow Chemical Company and the internal Dow Corning course recently announced.

The tentative details follow. AIChE will provide members with more information as the course is finalized.

Instructor and Excel VBA Project Consultant Tom R. Mincer, Ph.D. Professor of Mechanical Engineering

California State University Northridge President, SpreadsheetWorld, Inc. tmincer@spreadsheetworld.com



A special On-Line Offering

#### **Course Description**

This course covers the VBA language: data types, functions and sub-procedures, variable scope, arrays, control structures, variable naming convention, debugging, and error trapping.

#### Focus

Visual Basic for Applications (VBA) has become a very popular computer language. It combines the legacy Basic with application-specific visual object model libraries. Each host software application has its own VBA object model library. This VBA hands-on workshop is designed to dramatically increase productivity in using applications which host VBA, such as Excel. The purpose of this course is to provide a time-efficient, hands-on experience using VBA which will have an immediate and lasting impact for those who participate.

#### **Course Outline**

- Worksheet Input-output Fields
- Goal Seeking Inputs for Desired Outputs
- Named Worksheet Ranges
- Structured Workbooks and Templates
- Excel Add-in Collection
- Visual Basic Editor Environment
- VBA Object Library
- VBA Function Procedures
- VBA Sub Procedures

- VBA User-defined Functions
- Data Typing Variables and Functions
- Declaring Variables and Objects
- VBE Debugger
- Using the Recorder for Investigation
- VBA Arravs
- Dynamic Arrays and Array Dimensioning
- Decision Structures Course Description

Includes selected SpreadsheetWorld XLToolboxes for each participant.

## 2006 AIChE Annual Meeting in San Francisco, California



November 12–17, 2006 San Francisco Hilton San Francisco, California

**AIChE Annual Meeting: Registration – Coming Soon.** 

Registration: Visit http://www.aiche.org/Conferences/AnnualMeeting/index.aspx for further details.

For R&D professionals, AIChE's Annual Meeting provides an open forum to present papers to fellow engineers and scientists from around the world. For students, the national conference is the ideal place to learn, network and receive recognition.

<u>There are 17 Topical Conferences</u> at this year's event that will feature topical meetings and many sessions covering innovations and advances in chemical engineering fundamentals and emerging technologies. All topical conferences are included in your registration. In addition, a topical conference typically has short courses, networking events, and plenary speakers. Topicals include:

- T1- Water Resource Conservation: Purification, Reclamation and Reuse
- T2- Discovery, Development and Delivery of Medicines
- T3- 2006 Annual Meeting of the American Electrophoresis Society (AES)
- T4- Sustainable Biorefineries
- T5- Pilot Plant Design and Optimization
- T6- Organic Electronics
- T7- Product Design
- T8- Bionanotechnology
- T9- Sensors
- TA- Systems Biology

- TB- Women and Minorities in Chemical Engineering
- TC- Fuel Cells and Alternative Fuel Systems
- TD- 3rd Annual US CAPE-OPEN Conference
- TE- Sustainability
- TG- US-Japan Joint Topical Conference on Medical Engineering, Drug Delivery Systems
- TH- Frontiers in Energy Research
- TF- Nanoscale Science and Engineering Forum

## AIChE Mid-Michigan Section 2005–2006 Officers and Committee Chairpeople

Position	Name	Address	Internet E-mail	Phone	Fax
Chairperson	David Tascarella	Dow Corning Corp. Mail# 128 Midland, MI 48686-0995	david.tascarella@dowcorning.com	496-5377	496-6243
Past-Chairperson	Sarah Ratcliff	Dow Corning Corp. Mail# 121 Midland, MI 48686-0995	sarah.ratcliff@dowcorning.com	496-5675	496-8812
Chairperson-Elect	Rachel Wright	Dow Chemical Co. Mail# 128 Midland, MI 48686-0995	Rachel.Wright@dowcorning.com	496-6874	496-6243
Treasurer	Mark Riddle	Dow Chemical Co. 684 Bldg. Midland, MI 48667-684	msriddle@dow.com	638-2252	636-5121
Secretary	Kip Mercure	Dow Chemical Co. 1702 Building Midland, MI 48674-1702	pkmercure@dow.com	636-0546	636-4019
Dow Chemical Director	Victor Atiemo- Obeng	Dow Chemical Co. 1776 Building Midland, MI 48674-1776	vatiemoobeng@dow.com	636-3972	638-9674
Dow Corning Director	Dennis Phillips	Dow Corning Corp. Mail# 146 Midland, MI 48686-0995	dennis.phillips@dowcorning.com	496-5243	496-1560
Director- at-Large	Norm Lake	Dow Chemical Co. 1400 Building Midland, MI 48667-1400	nlake@dow.com	638-9235	638-3929
Program Chairperson	Brett Birchmeier	Dow Chemical Co. 438 Building Midland, MI 48667-0438	bbirchmeier@dow.com	636-1916	638-7337

Position	Name	Address	Internet E-mail	Phone	Fax
Membership	Mike Durisin	Hemlock Semiconductor Corp. 12334 Geddes Rd. P. O. Box 80 Hemlock, MI 48626- 0080	mike.durisin@hscpoly.com	642-5201 x2653	642-8043
Publicity/New Hire	Lisa Callender	Dow Chemical Co. 1400 Building, #205 Midland, MI 48667-1400	llcallender@dow.com	636-7167	638-6671
MTU Scholarship	Erin Lacher	Dow Corning Corp. Mail #128 Midland, MI 48686-0995	erin.lacher@dowcorning.com	496-1664	496-6243
Fund Raising Chair	Mike Molnar	Hemlock Semiconductor Corp. 12334 Geddes Road, P.O. Box 80, Mail# HEM090 Hemlock, MI 48626	michael.molnar@hscpoly.com	642-5201 x2218	642-7360
Education Outreach	Open position				
AIChE Scholarship	David Tascarella	Dow Corning Corp. Mail# 128 Midland, MI 48686-0995	david.tascarella@dowcorning.com	496-5377	496-6243
Continuing Education	Brett Birchmeier	Dow Chemical Co. 438 Building Midland, MI 48667-0438	bbirchmeier@dow.com	636-1916	638-7337
School Donations	Open position				
Newsletter Editor/ Web master	Eric Stangland	Dow Chemical Co. 1776 Building Midland, MI 48674-1776	eestangland@dow.com	636-0517	638-9674
Section Historian	Open position				

All telephone numbers listed above are in the 989 area code unless otherwise specified.