Appendix A:
Mechanical and Electro-mechanical Structure Measurements.

Structure	L1	L2	L3	XL1	XL2	XL3	XXL1	XXL2	XXL3
Weight (grams)	**26.40**	**26.20**	**26.90**	**53.34**	**53.44**	**44.41**	**105.60**	**102.52**	**104.82**
Height (mm)	44.49	45.3	47.46	78.86	80.25	82.51	82.10	81.29	83.84
	45.02	45.38	47.59	79.45	81.02	82.66	81.46	81.79	83.80
	45.37	45.21	47.44	78.21	82.31	81.43	81.53	81.15	82.95
	44.97	45.08	46.92	78.30	84.61	81.25	81.04	81.69	84.28
	45.55	45.38	47.48	78.05	79.97	82.08	80.93	81.77	82.72
Average	**45.08**	**45.27**	**47.38**	**78.57**	**81.63**	**81.99**	**81.41**	**81.54**	**83.52**
STDEV	**0.409**	**0.127**	**0.263**	**0.577**	**1.896**	**0.630**	**0.464**	**0.297**	**0.656**
Width (mm)	68.84	63.61	65.48	130.29	129.29	105.88	133.14	130.56	141.64
	68.63	64.09	65.38	130.66	129.55	108.44	131.83	130.47	140.11
	68.59	66.46	65.93	128.00	129.82	103.71	131.72	131.08	143.06
	67.88	64.20	65.89	131.84	130.77	104.81	132.56	131.18	143.44
	68.75	65.92	65.73	127.28	129.44	106.93	132.60	132.42	144.09
Average	**68.54**	**64.86**	**65.68**	**129.61**	**129.77**	**105.95**	**132.37**	**131.14**	**142.47**
STDEV	**0.381**	**1.252**	**0.244**	**1.908**	**0.590**	**1.836**	**0.591**	**0.779**	**1.595**
Thickness (mm)	26.89	26.38	27.18	27.94	26.81	26.59	27.18	26.89	26.93
	26.61	27.11	27.61	27.00	27.03	27.56	27.55	27.22	26.63
	26.47	26.22	27.30	26.02	25.92	27.40	27.05	26.45	26.68
	26.51	26.95	27.38	26.61	26.98	28.10	26.84	27.01	27.32
	26.13	27.00	28.42	26.33	26.60	26.41	27.27	26.67	26.81
Average	**26.52**	**26.73**	**27.58**	**26.78**	**26.67**	**27.21**	**27.18**	**26.85**	**26.87**
STDEV	**0.274**	**0.403**	**0.496**	**0.742**	**0.451**	**0.703**	**0.263**	**0.299**	**0.275**

Table A-1. Measurements of all the mechanical structures dimensions. Five measurements were recorded and averages values were used.

Structure	pXL1	pXL2	pXL3	pXL4	pXL5
Weight (grams)	**17.38**	**17.41**	**17.97**	**17.23**	**17.96**
Height (mm)	33.40	32.66	33.26	32.70	33.36
	32.70	31.41	33.41	33.49	33.87
Average	**33.05**	**32.04**	**33.34**	**33.10**	**33.62**
STDEV	**0.350**	**0.625**	**0.075**	**0.395**	**0.255**
Width (mm)	55.79	56.92	58.95	57.44	59.48
	56.46	56.25	62.93	59.35	59.68
Average	**56.13**	**56.59**	**60.94**	**58.40**	**59.58**
STDEV	**0.335**	**0.335**	**1.990**	**0.955**	**0.100**
Thickness (mm)	25.27	25.83	25.85	26.07	25.86
	25.35	25.38	26.06	26.84	25.84
Average	**25.31**	**25.61**	**25.96**	**26.46**	**25.85**
STDEV	**0.040**	**0.225**	**0.105**	**0.385**	**0.010**

Table A-2a. Measurements of all the electro-mechanical structures dimensions. Five measurements were recorded and averages values were used.

Structure	pXXL1	pXXL2	pXXL3	pXXL4	pXXL5
Weight (grams)	**25.37**	**25.55**	**25.75**	**25.56**	**26.30**
	34.00	34.88	33.59	34.00	33.92
Height (mm)	33.50	33.88	34.38	34.37	34.29
Average	**33.75**	**34.38**	**33.99**	**34.19**	**34.11**
STDEV	**0.35**	**0.71**	**0.56**	**0.26**	**0.26**
Width (mm)	57.20	58.99	57.83	57.96	57.52
	57.72	58.72	56.80	59.30	58.17
Average	**57.46**	**58.86**	**57.32**	**58.63**	**57.85**
STDEV	**0.26**	**0.14**	**0.52**	**0.67**	**0.33**
Thickness (mm)	25.70	27.95	25.17	24.55	27.51
	25.50	25.62	25.47	25.47	25.80
Average	**25.60**	**26.79**	**25.32**	**25.01**	**26.66**
STDEV	**0.10**	**1.16**	**0.15**	**0.46**	**0.86**

Table A-2b. Measurements of all the electro-mechanical structures dimensions. Five measurements were recorded and averages values were used.

Structure Averages and Relative Densities:

	Weigth (grams)	Height (mm)	Width (mm)	Thickness (mm)	Relative Density ($\rho_{Cel.\ Solid}/\rho_{Material}$)
L_1	26.40	45.08	68.54	26.52	0.041
L_2	26.20	45.27	64.86	26.73	0.042
L_3	26.90	47.38	65.68	27.58	0.040
L_{Avg}	**26.50**	**45.91**	**66.36**	**26.94**	**0.041**
XL_1	53.34	78.57	129.61	26.78	0.025
XL_2	53.44	81.63	129.77	26.67	0.024
XL_3 *	44.41	81.99	105.95	27.21	0.024
XL_{Avg}	**50.40**	**80.73**	**121.78**	**26.89**	**0.024**
XXL_1	105.60	81.41	132.37	27.18	0.046
XXL_2	102.52	81.54	131.14	26.85	0.045
XXL_3	104.82	83.52	142.47	26.87	0.041
XXL_{Avg}	**104.31**	**82.16**	**135.33**	**26.97**	**0.044**
pXL_1	17.38	33.05	56.13	25.31	0.047
pXL_2	17.41	32.04	56.59	25.61	0.047
pXL_3	17.97	33.34	60.94	25.96	0.043
pXL_4	17.23	33.10	58.40	26.46	0.043
pXL_5	17.96	33.62	59.58	25.85	0.044
pXL_{Avg}	**17.72**	**33.35**	**59.64**	**26.09**	**0.043**
pXXL_1	25.37	33.75	57.46	25.60	0.065
pXXL_2	25.55	34.38	58.86	26.79	0.060
pXXL_3	25.75	33.99	57.32	25.32	0.066
pXXL_4	25.56	34.19	58.63	25.01	0.065
pXXL_5	26.30	34.11	57.85	26.66	0.063
$pXXL_{Avg}$	**25.87**	**34.09**	**57.93**	**25.66**	**0.065**

Table A-2. All average values for mechanical and electro-mechanical structures.

Appendix B:
Stress-strain curves up to 0.04 strain for all specimens

Loading and unloading cycles with its respective linear region where the modulus of elasticity was calculated.

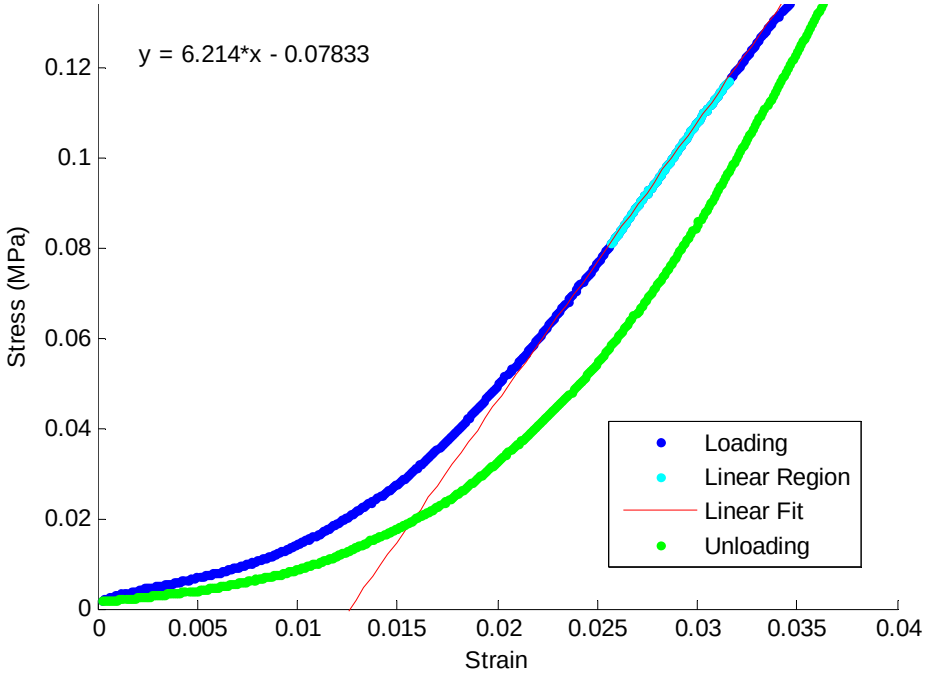

Figure B-1. Linear fit for L1 at strain of 4.0 percent.

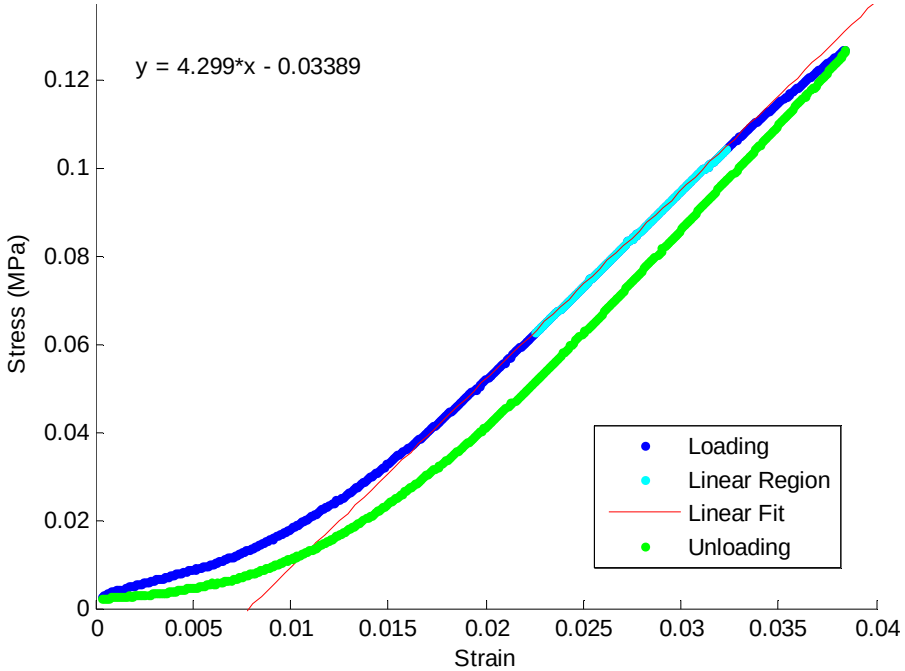

Figure B-2. Linear fit for L2 at strain of 4.0 percent.

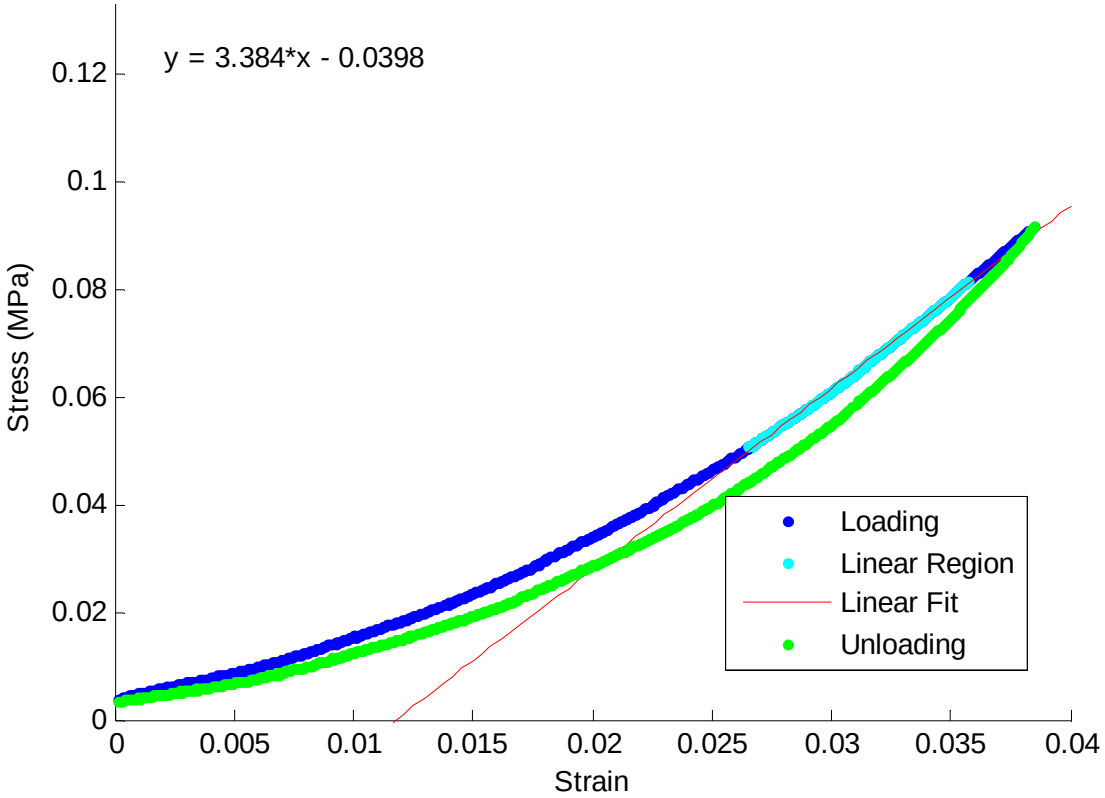

Figure B-3. Linear fit for L3 at strain of 4.0 percent.

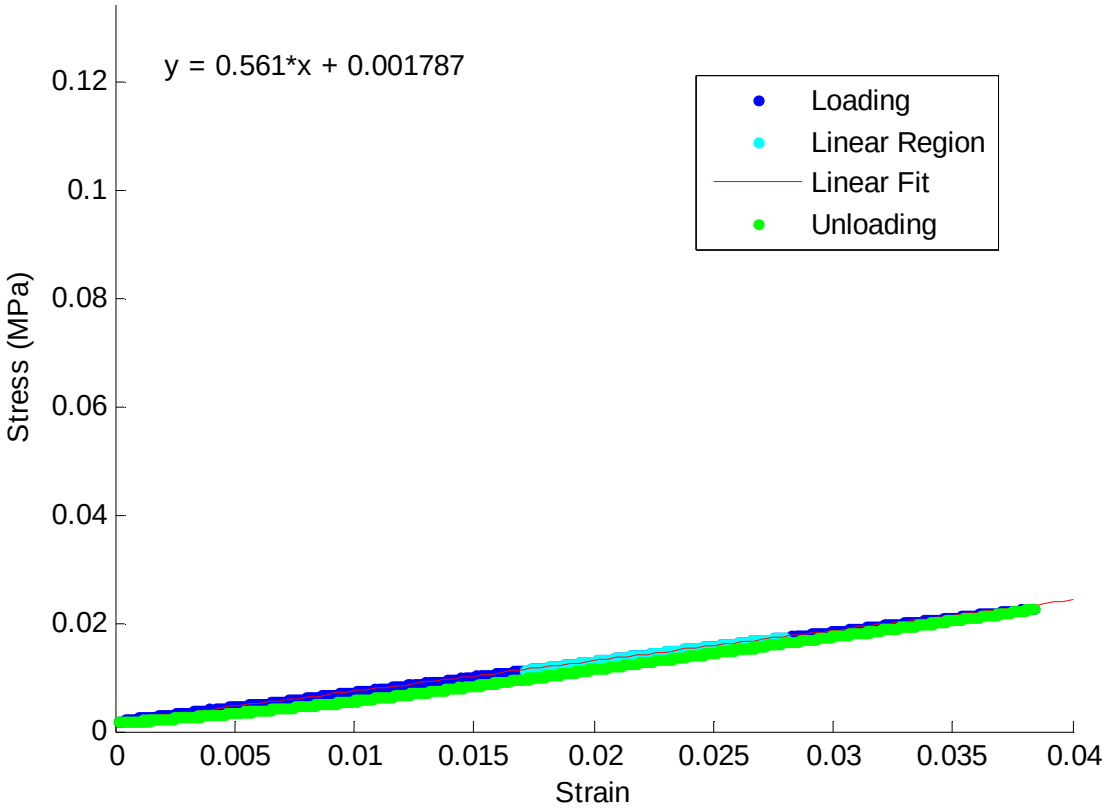

Figure B-4. Linear fit for XL1 at strain of 4.0 percent.

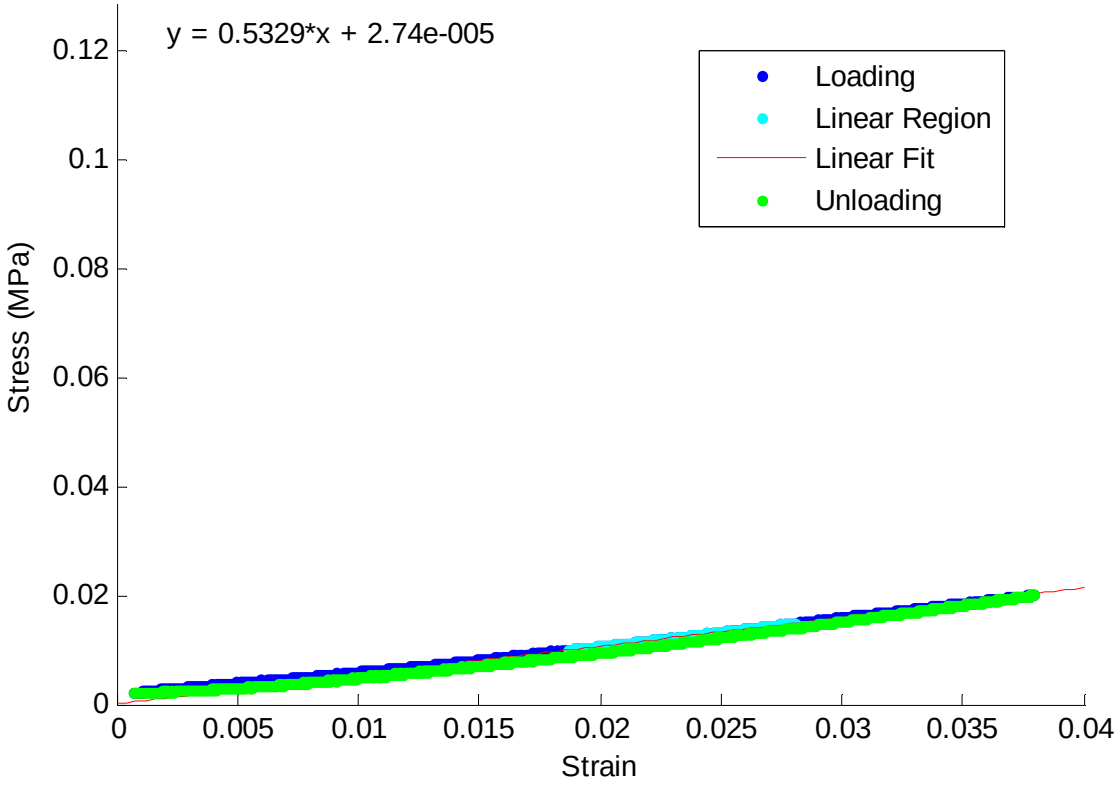

Figure B-5. Linear fit for XL2 at strain of 4.0 percent.

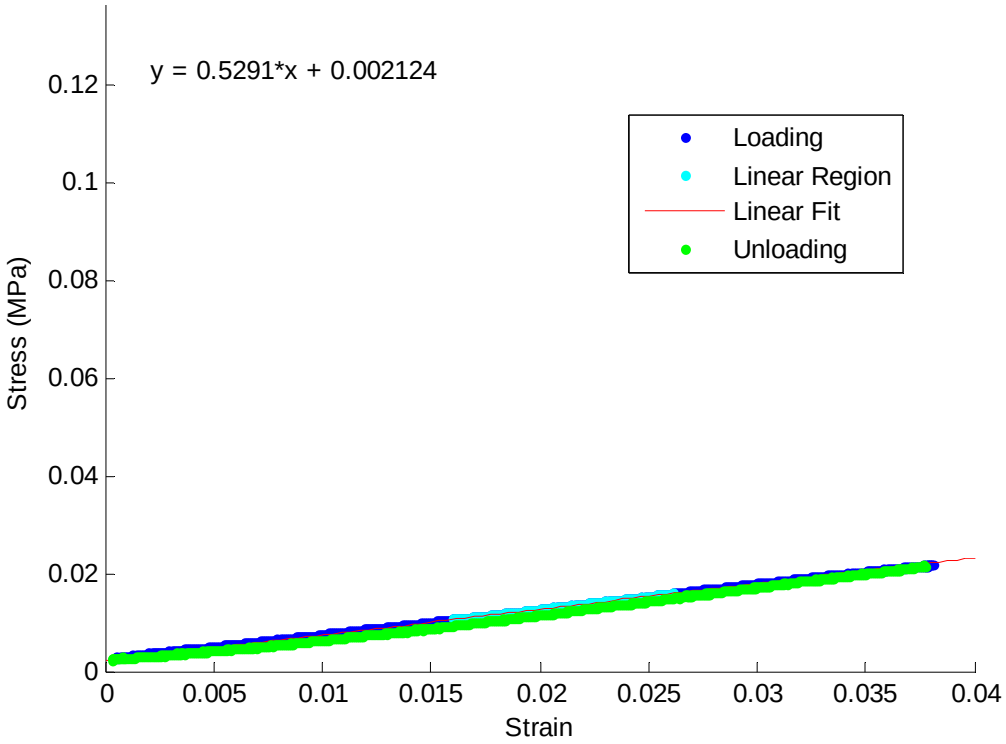

Figure B-6. Linear fit for XL3 at strain of 4.0 percent.

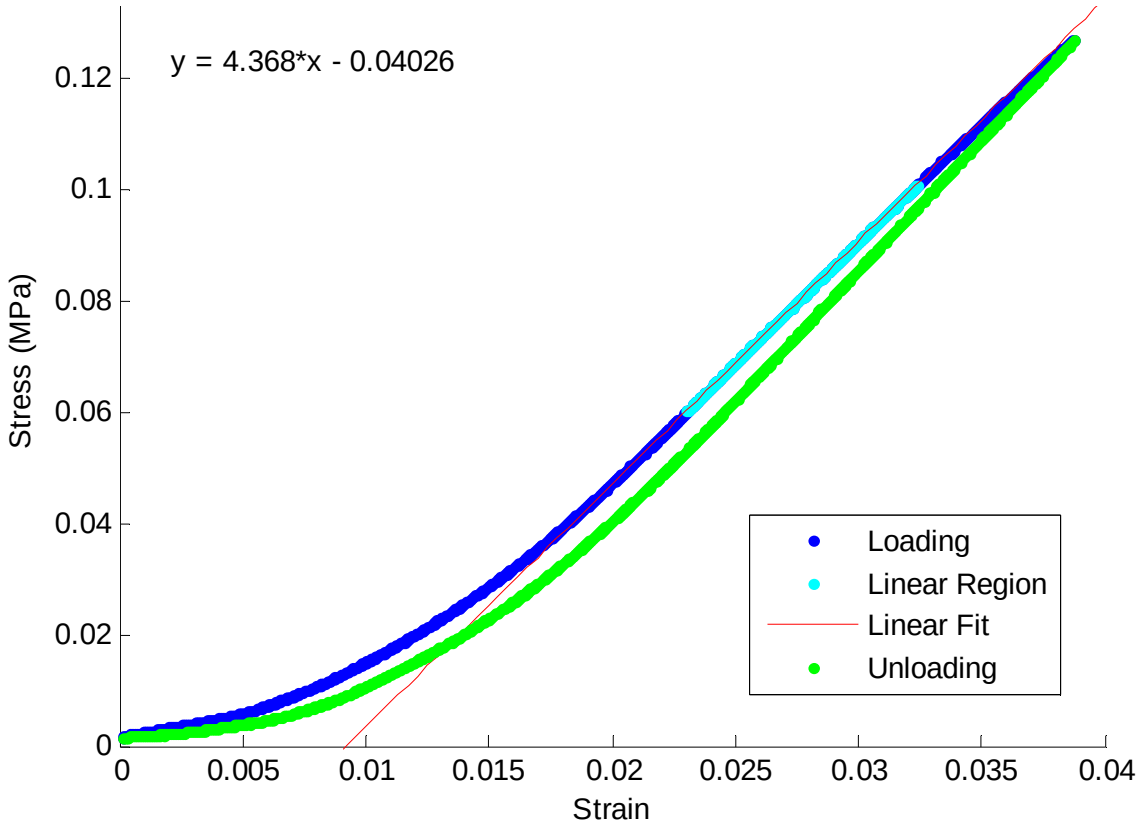

Figure B-7. Linear fit for XXL1 at strain of 4.0 percent.

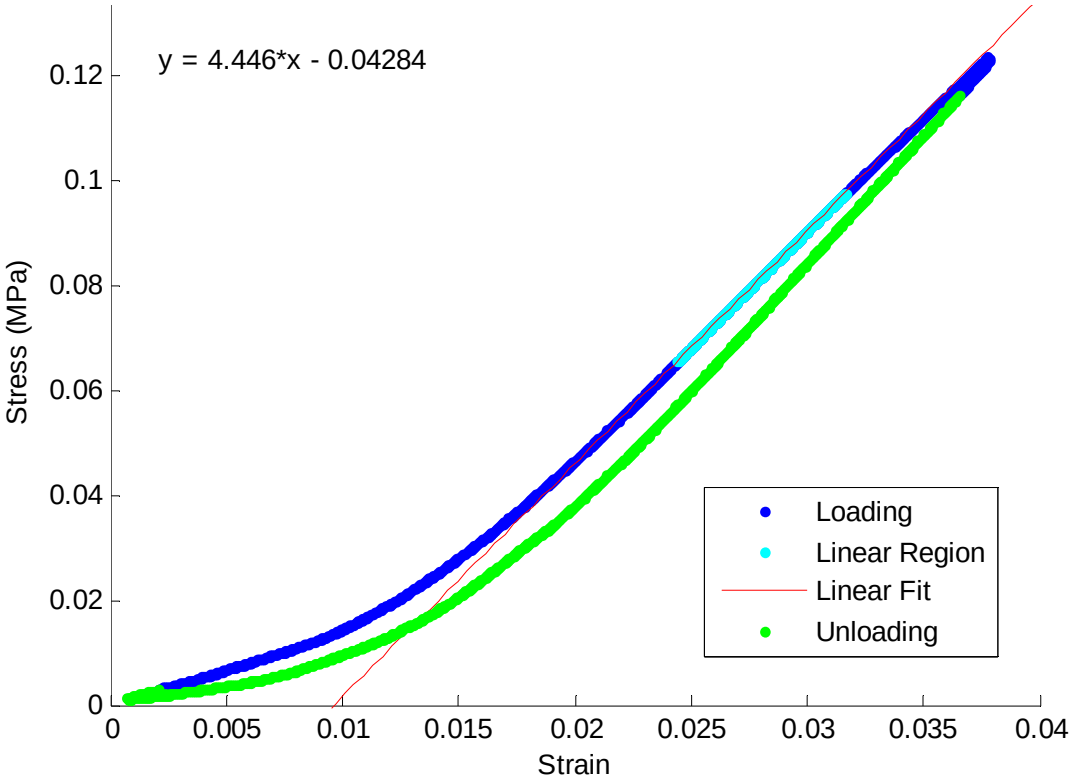

Figure B-8. Linear fit for XXL2 at strain of 4.0 percent.

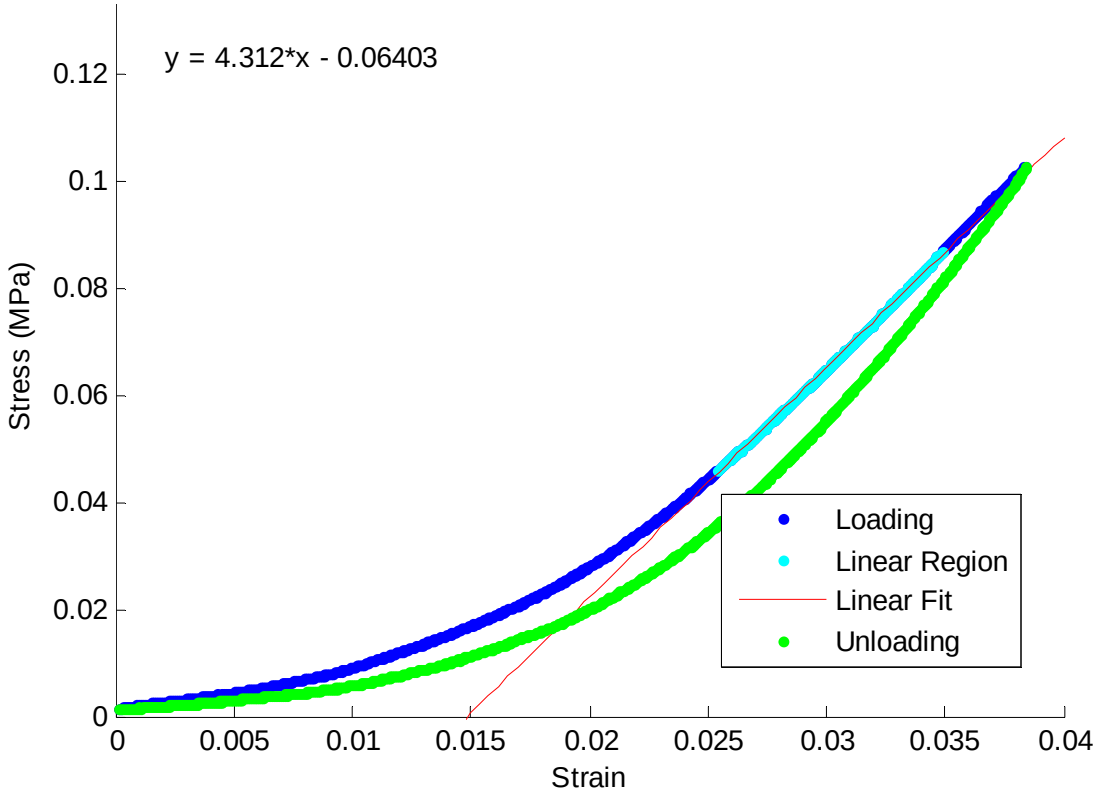

Figure B-9. Linear fit for XXL4 at strain of 4.0 percent.

FEA Stress Strain Curves:

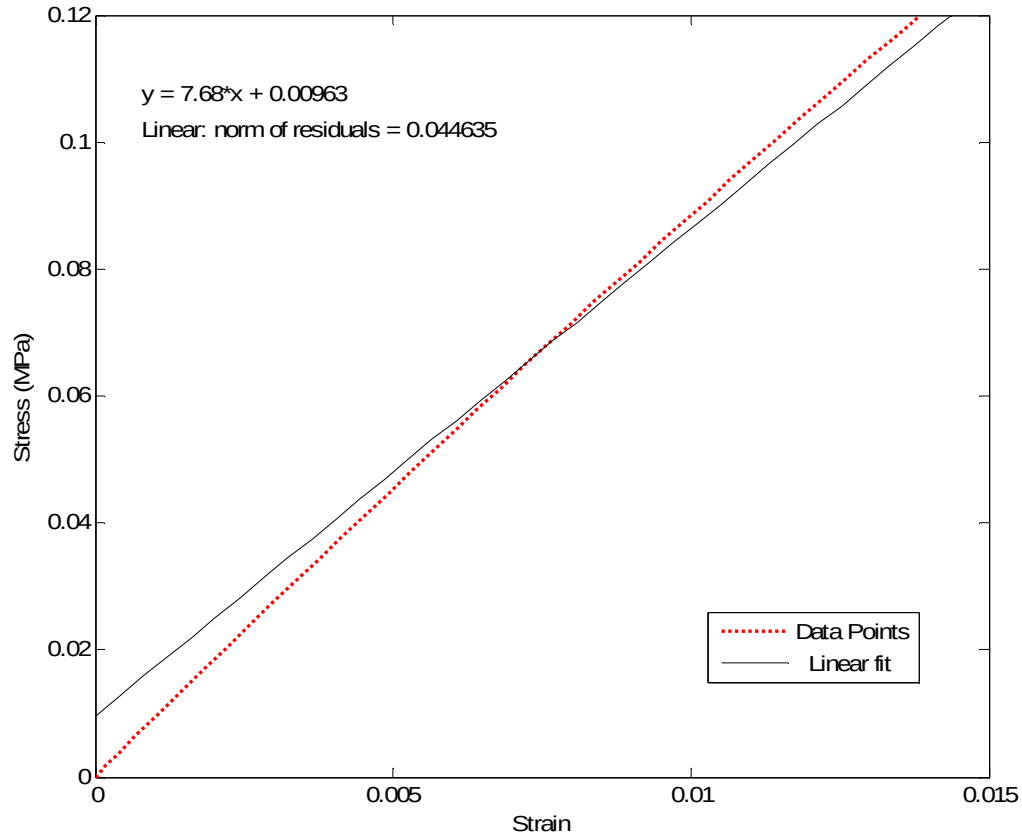

Figure B-10. Stress Strain Curve in Abaqus FEA for large (L) model.

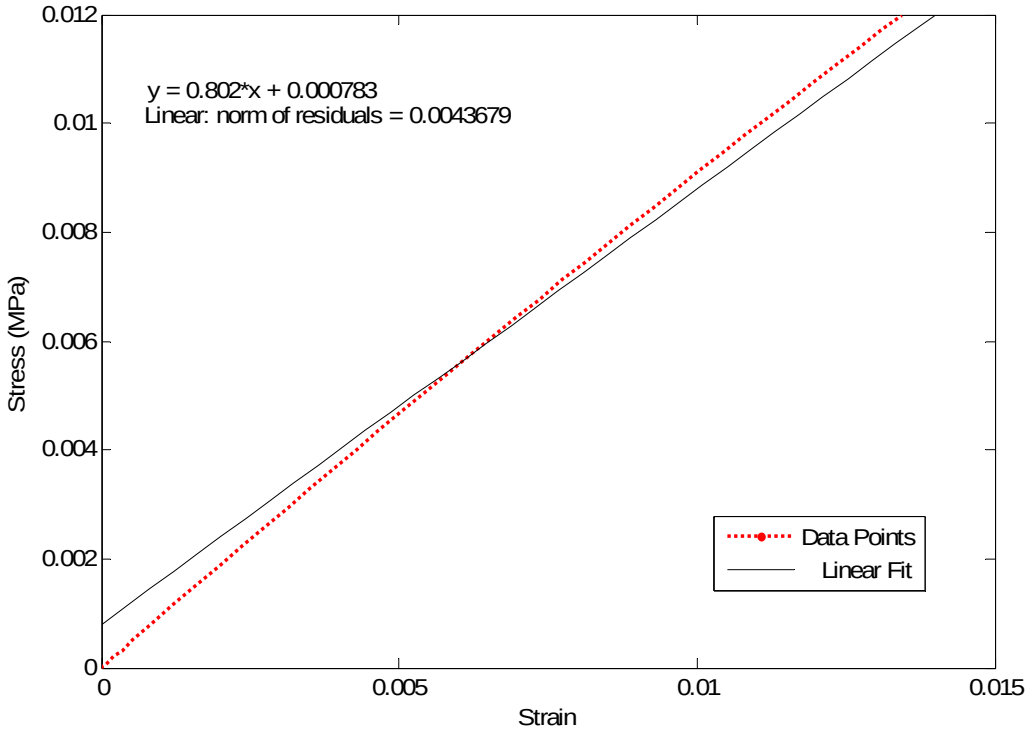

Figure B-11. Stress Strain Curve in Abaqus FEA for extra large (XL) model.

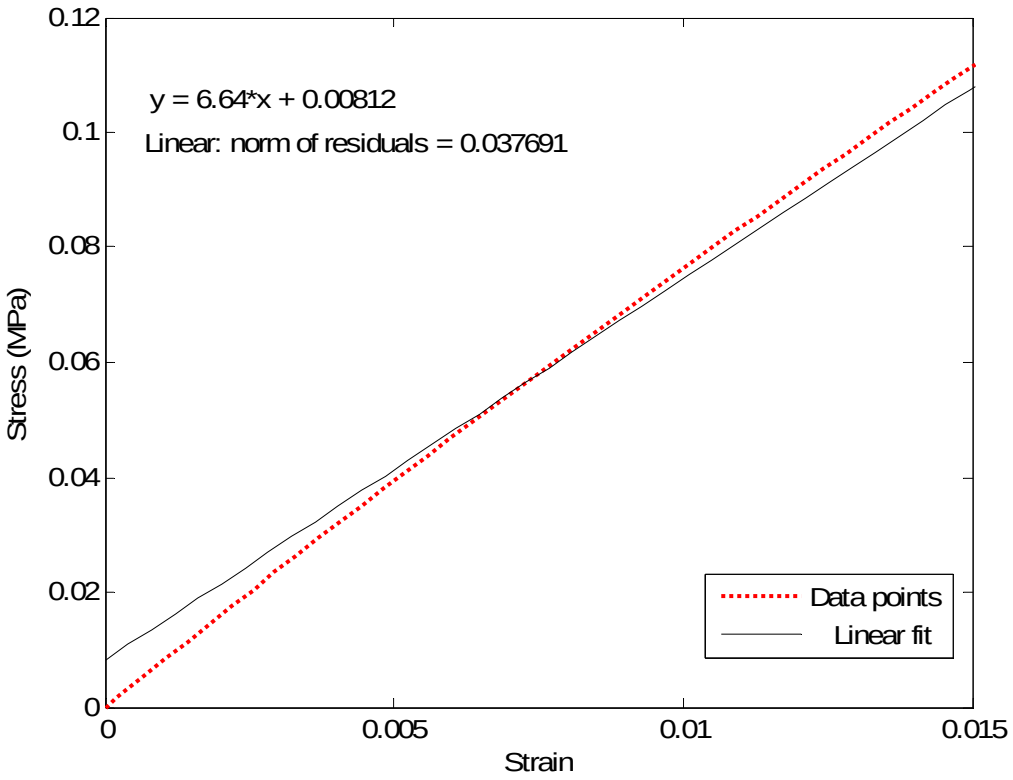

Figure B-12. Stress Strain Curve in Abaqus FEA for extra extra large (XXL) model.

Appendix C:
Compressive Strain Values vs. Stress at each run for every specimen.

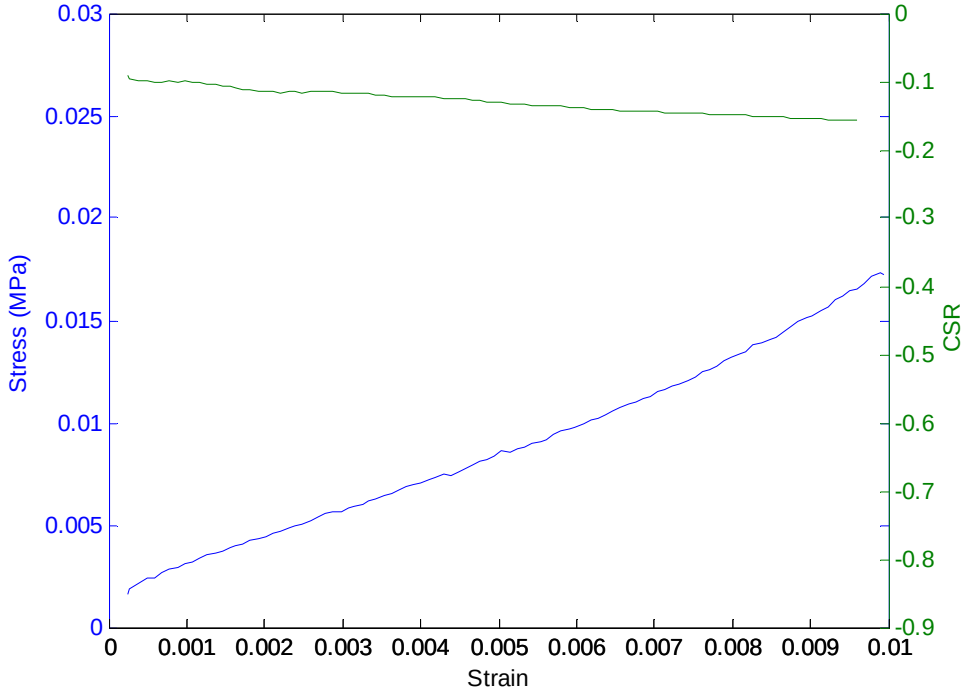

Figure C-1. Compressive strain values at different strain level up to 0.01 for L1.

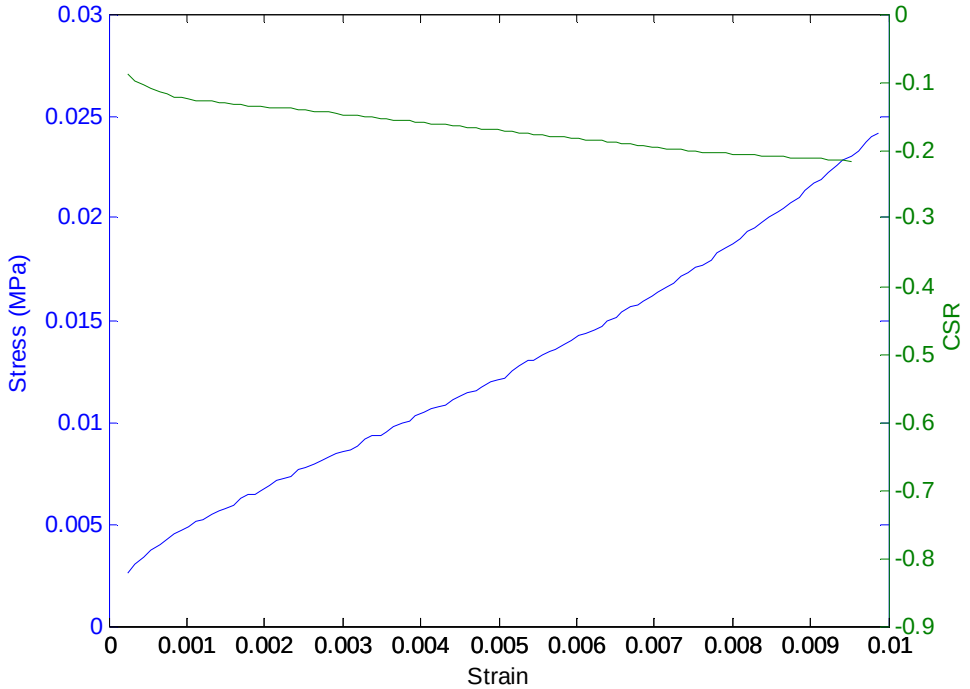

Figure C-2. Compressive strain values at different strain level up to 0.01 for L2.

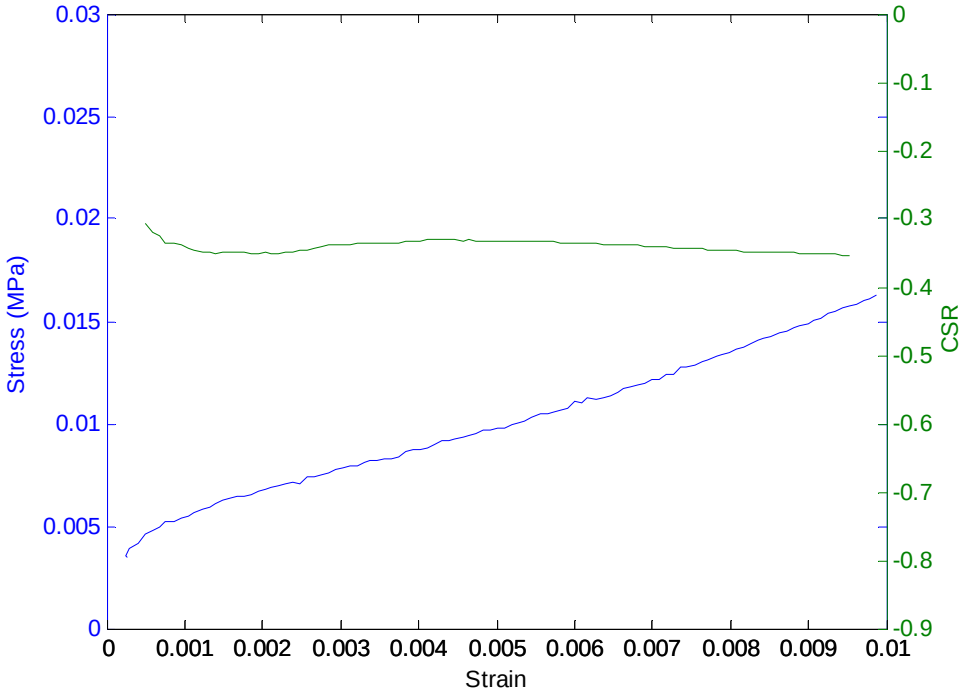

Figure C-3. Compressive strain values at different strain level up to 0.01 for L3.

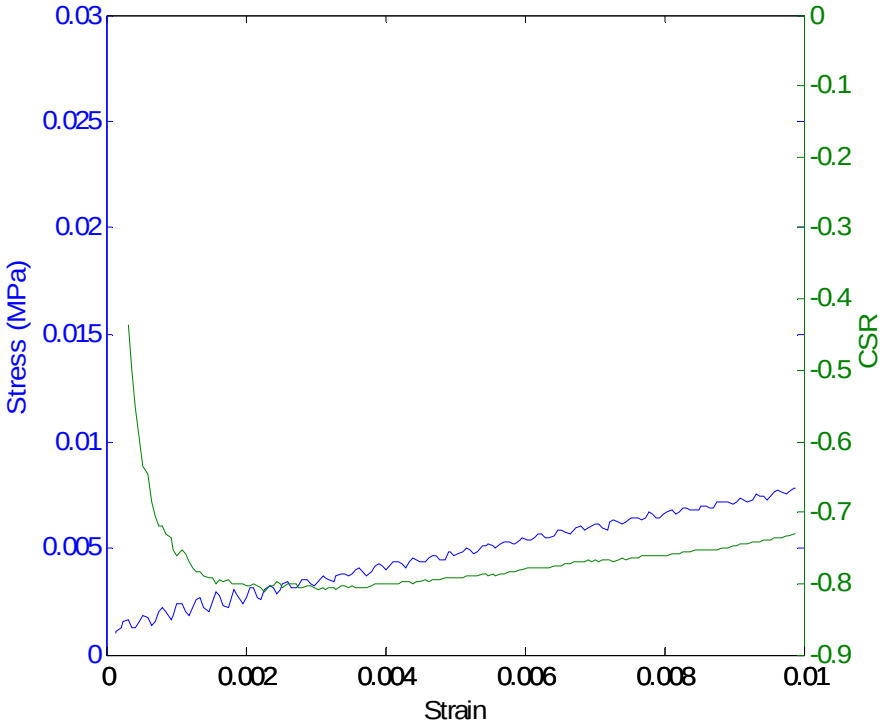

Figure C-4. Compressive strain values at different strain level up to 0.01 for XL1.

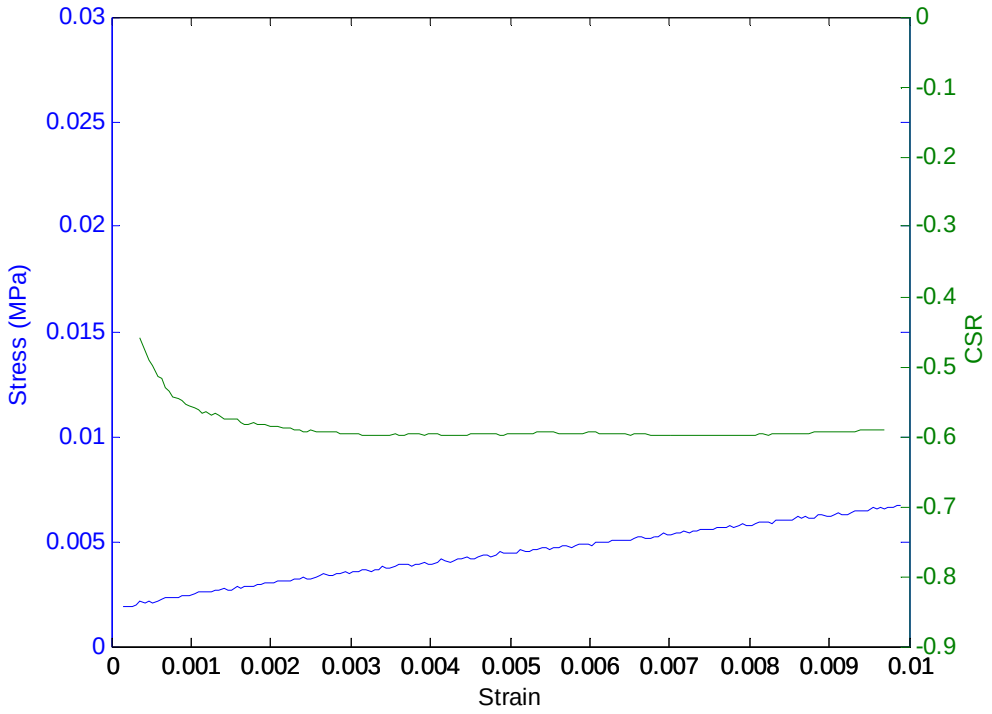

Figure C-5. Compressive strain values at different strain level up to 0.01 for XL2.

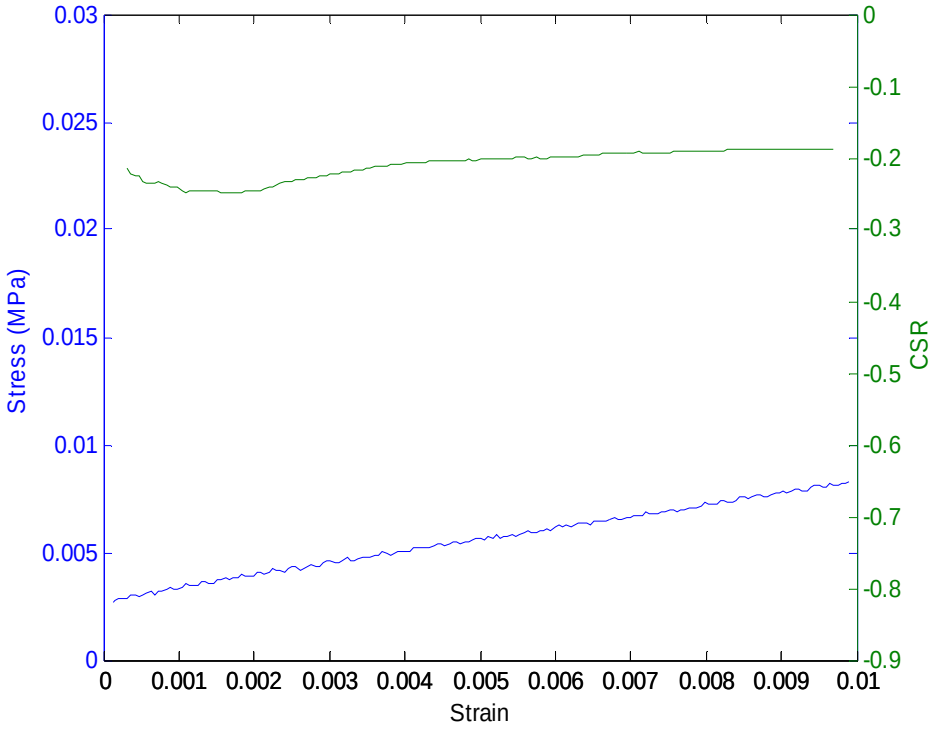

Figure C-6. Compressive strain values at different strain level up to 0.01 for XL3.

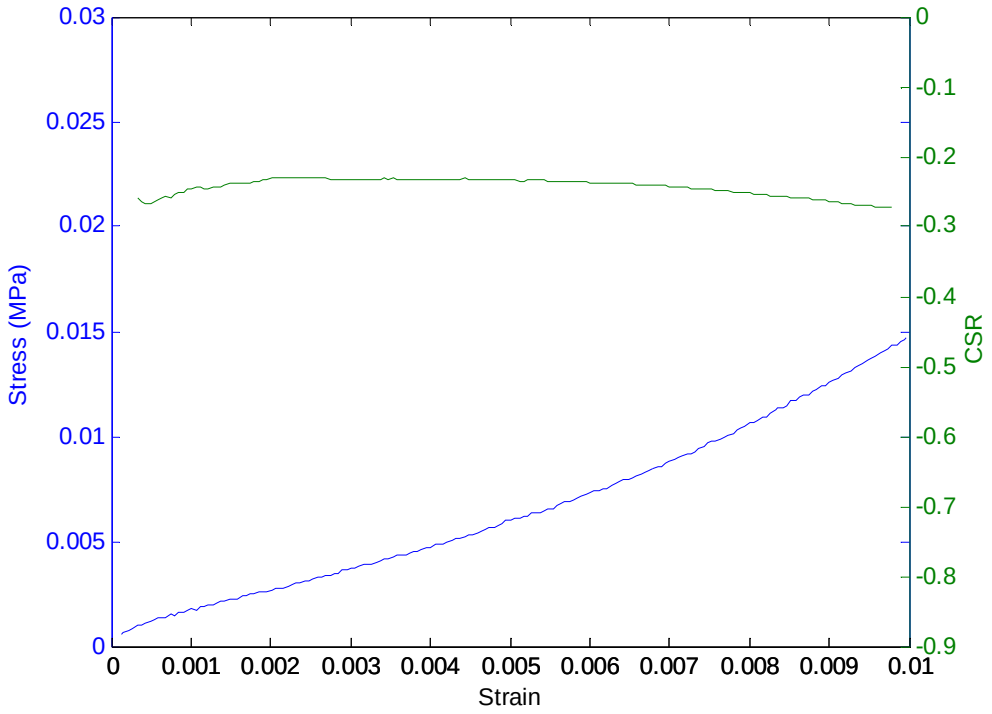

Figure C-7. Compressive strain values at different strain level up to 0.01 for XXL1.

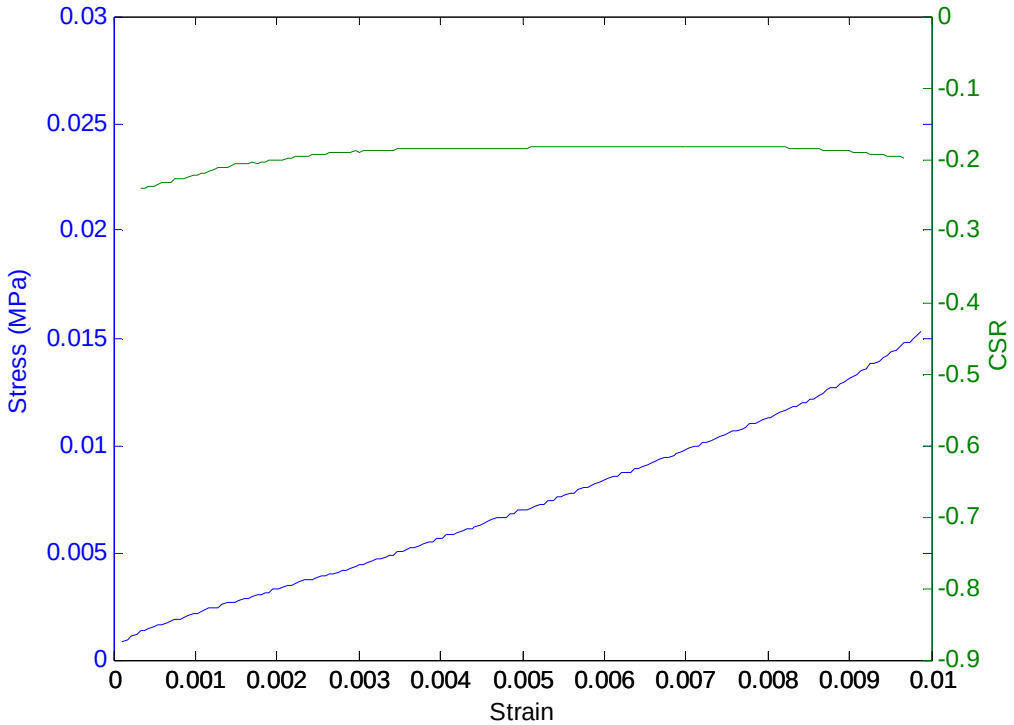

Figure C-8. Compressive strain values at different strain level up to 0.01 for XXL2.

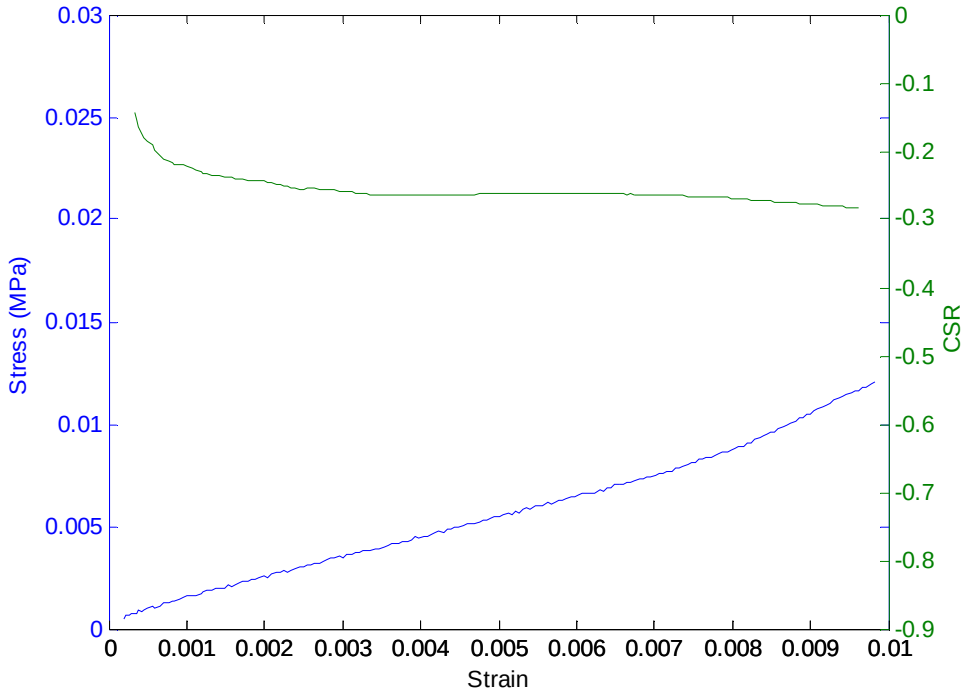

Figure C-9. Compressive strain values at different strain level up to 0.01 for XXL3.

Finite Element Values:

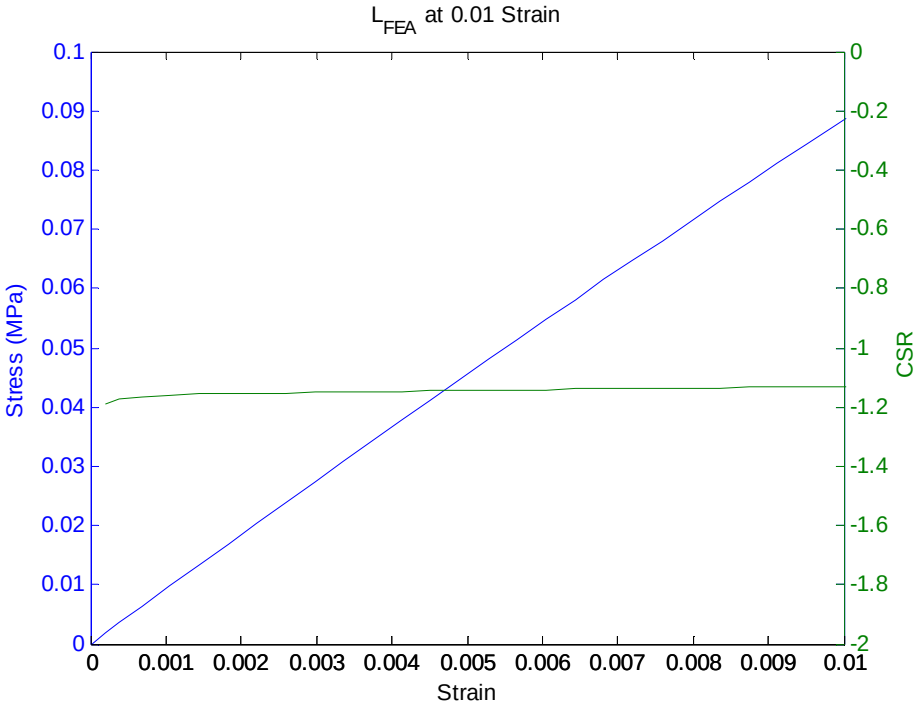

Figure C-10. Compressive strain values at different strain level up to 0.01 for the FEA analysis, L model.

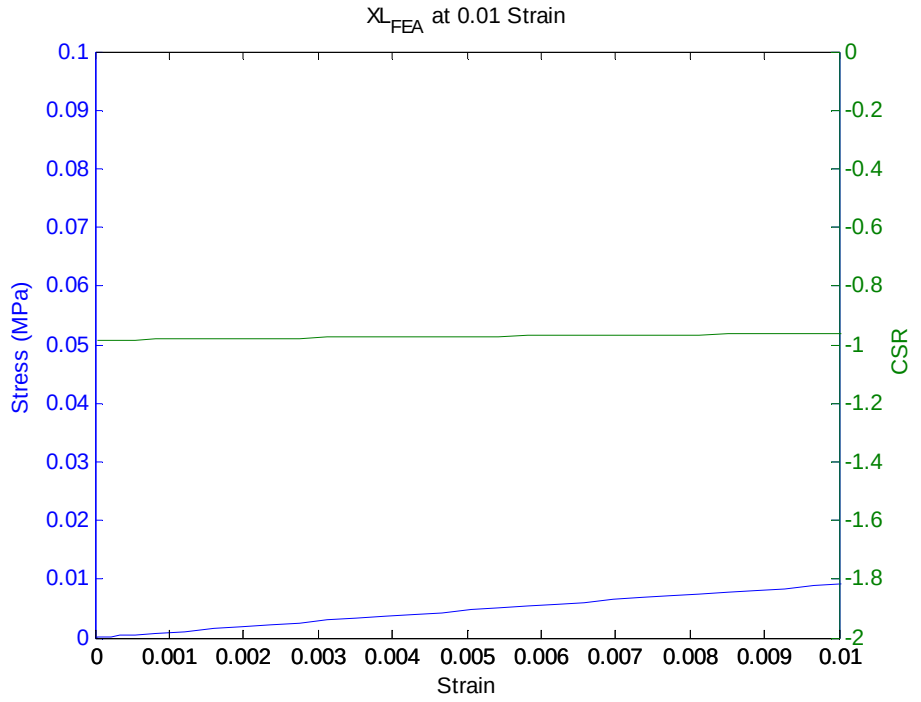

Figure C-11. Compressive strain values at different strain level up to 0.01 for the FEA analysis, L model.

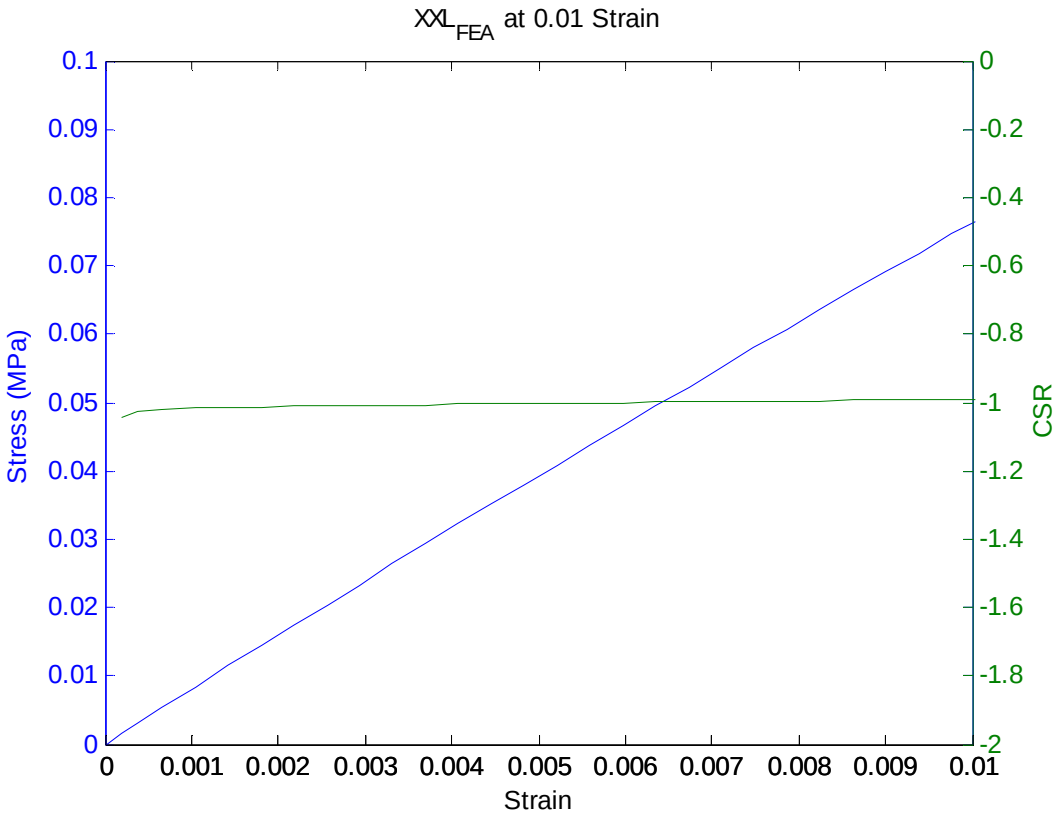

Figure C-12. Compressive strain values at different strain level up to 0.01 for the FEA analysis, L model.

Appendix D:
Electro-mechanical signals.

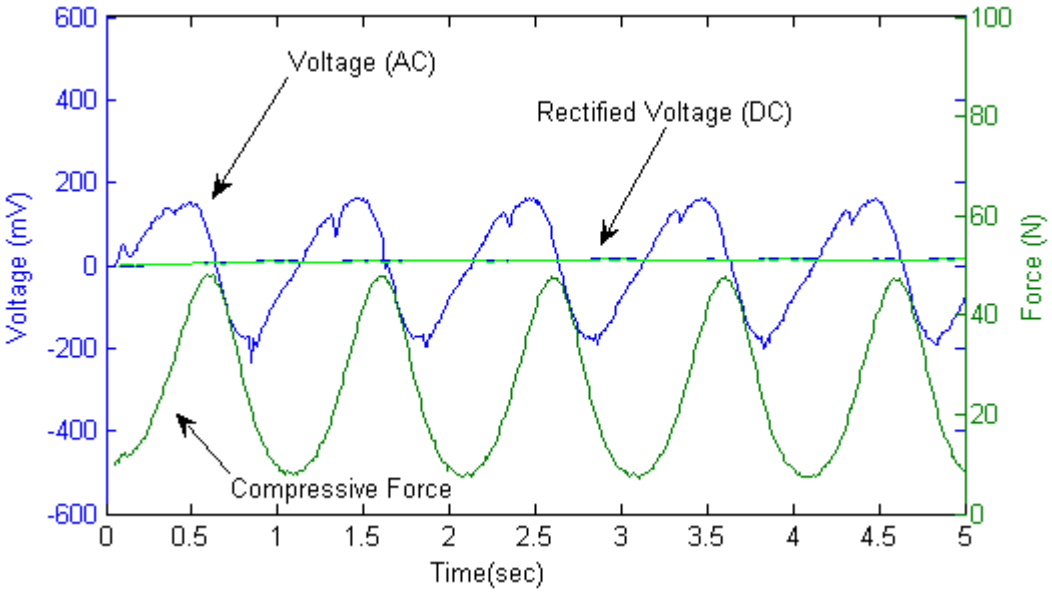

Figure E-1a. pXXL1 at 1Hz. Strain 1.0

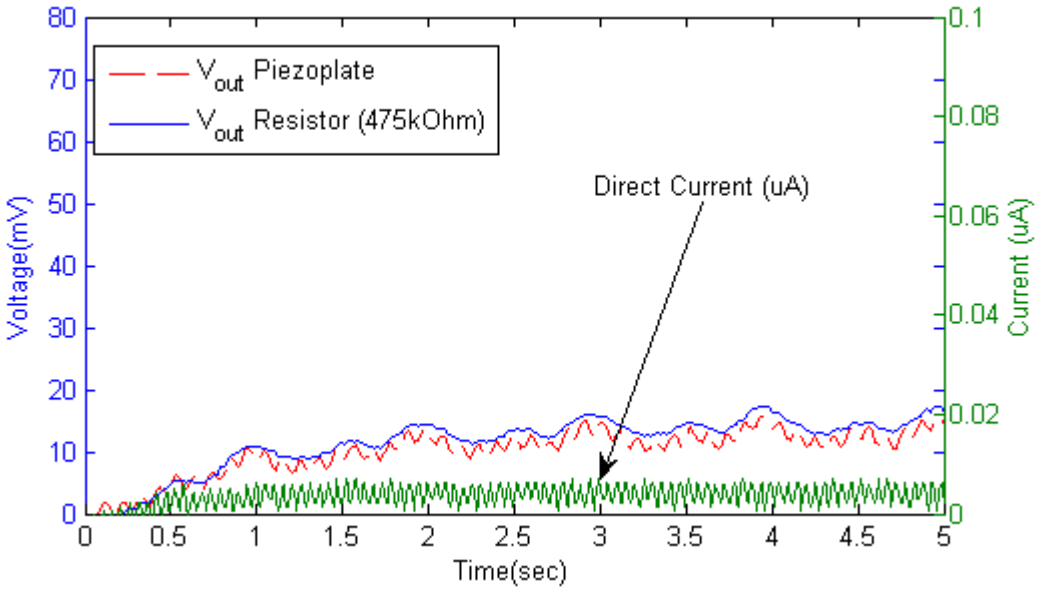

Figure E-1b. Zoomed rectified signal for pXXL1 at 1Hz. Strain 1.0

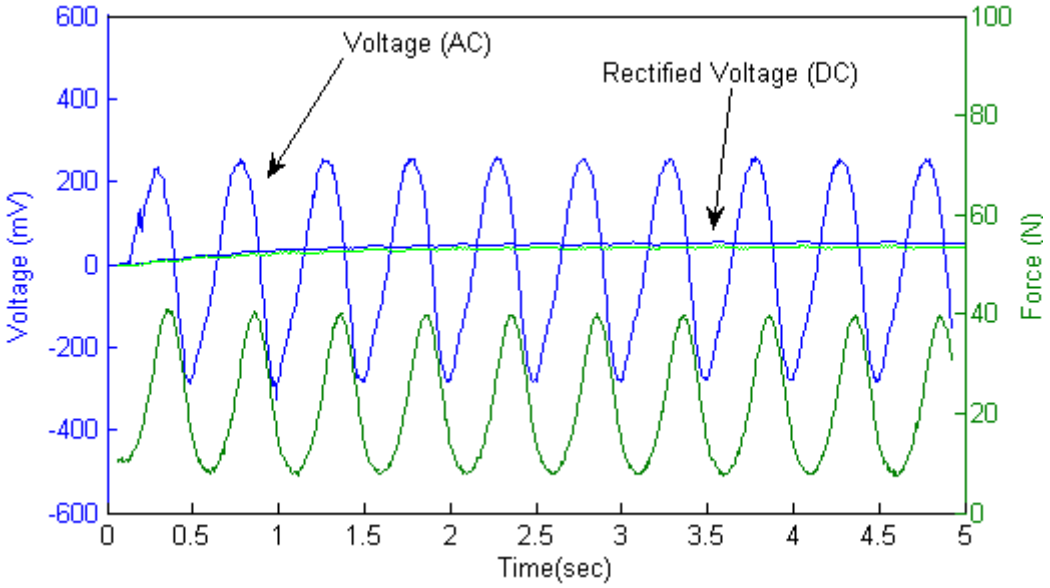

Figure E-2a. pXXL1 at 2Hz. Strain 1.0

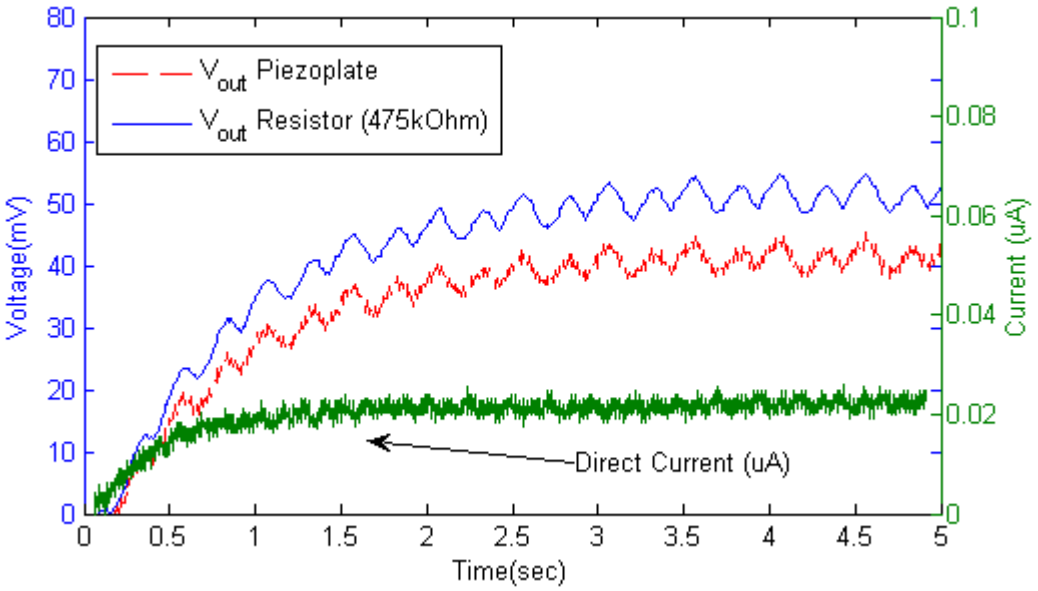

Figure E-2b. Zoomed rectified signal for pXXL1 at 2Hz. Strain 1.0

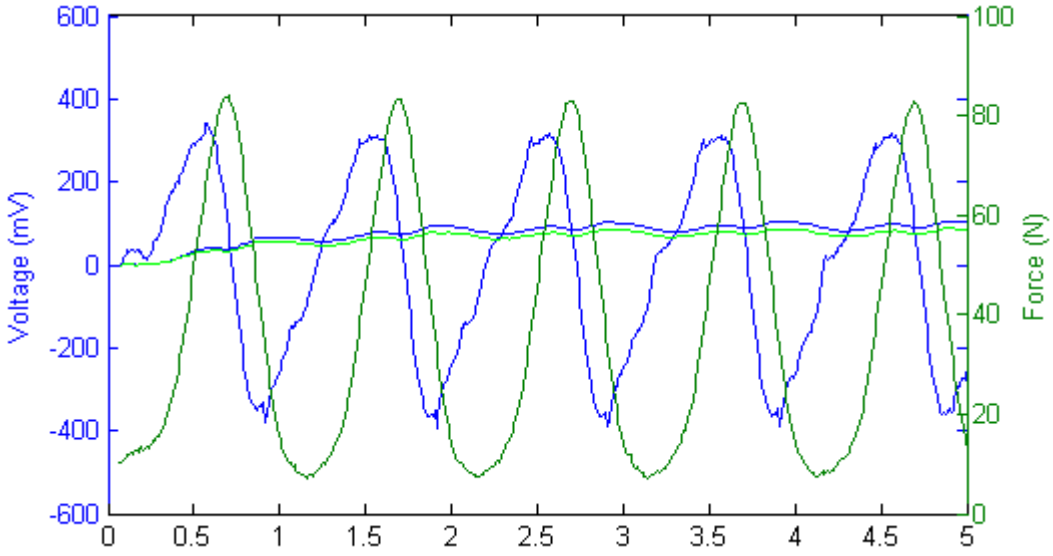

Figure E-3a. pXXL1 at 1Hz. Strain 2.0

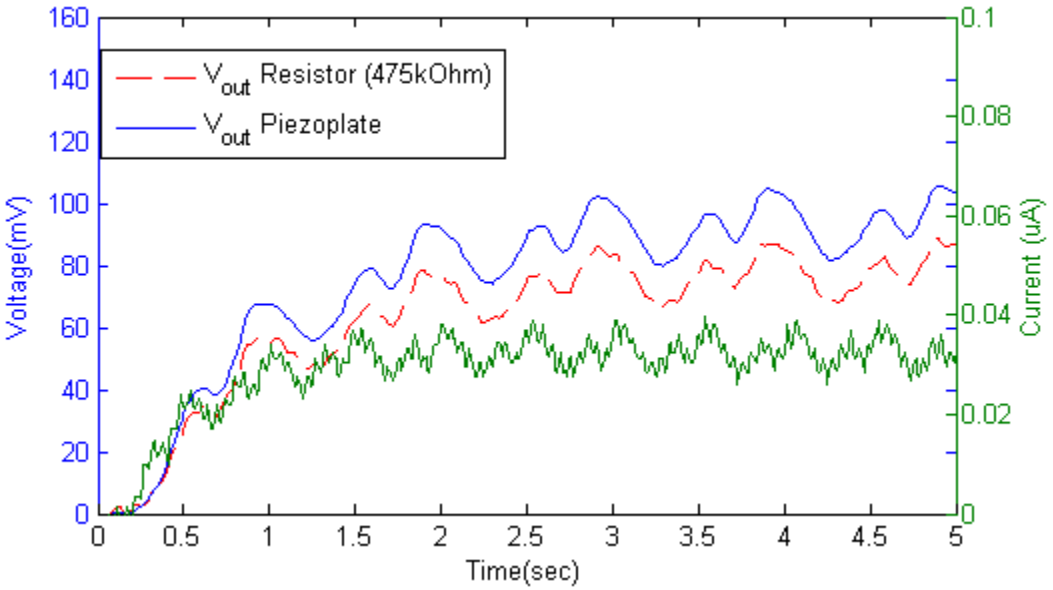

Figure E-3b. Zoomed rectified signal for pXXL1 at 1Hz. Strain 2.0

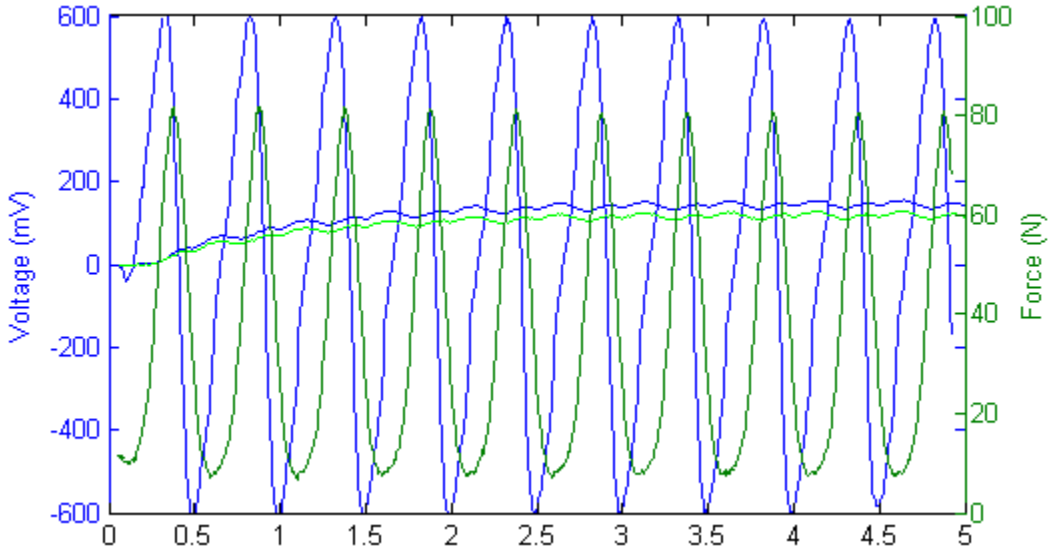

Figure E-4a. pXXL1 at 2Hz. Strain 2.0

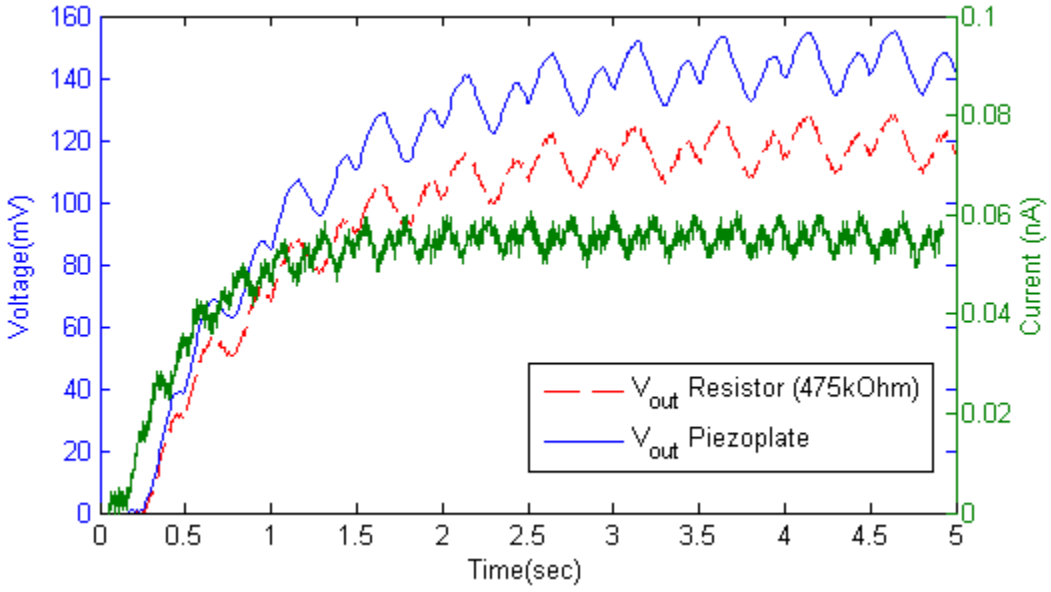

Figure E-4b. Zoomed rectified signal for pXXL1 at 2Hz. Strain 2.0

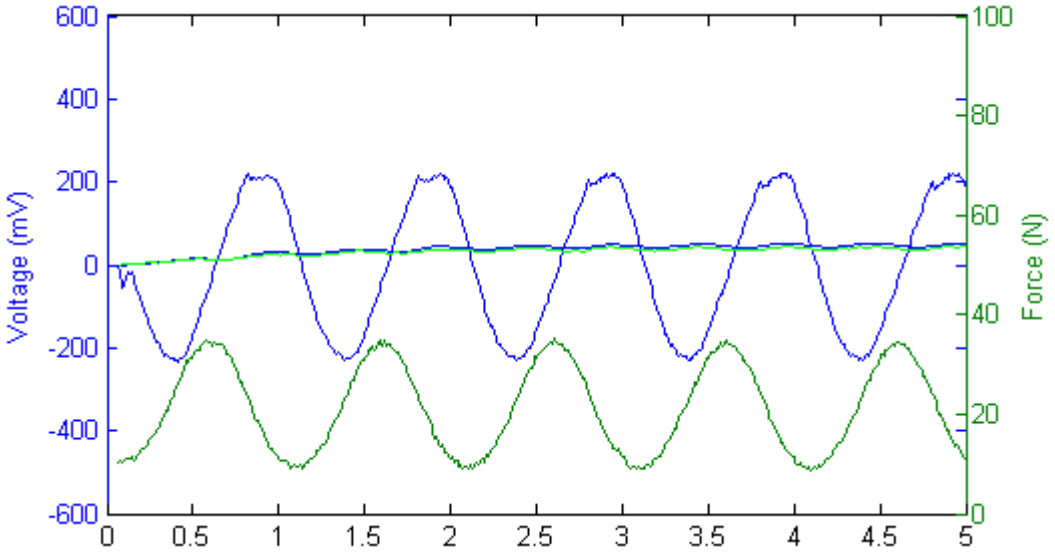

Figure E-5a. pXXL2 at 1Hz. Strain 1.0

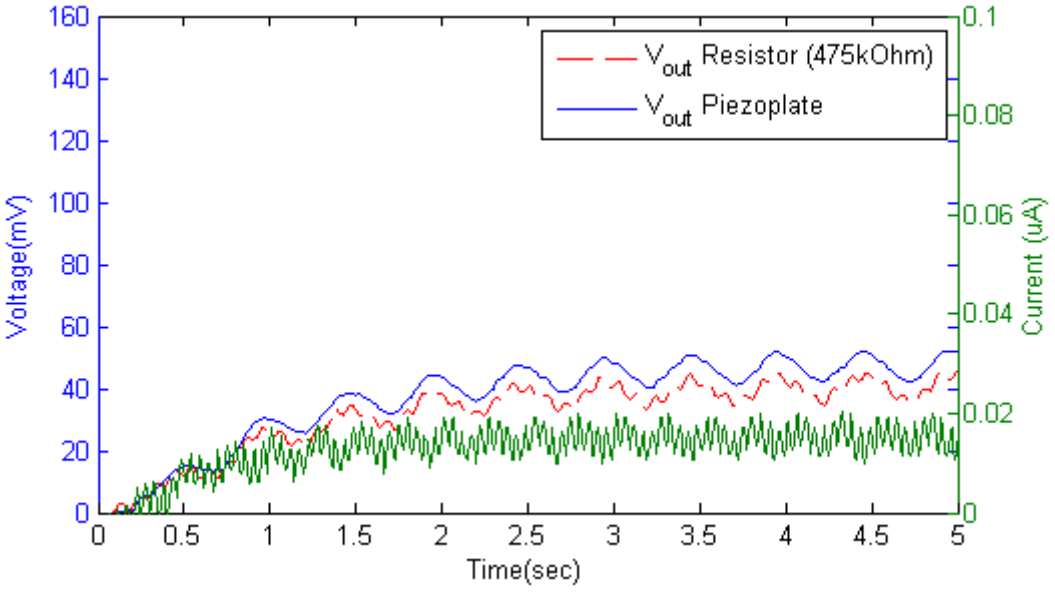

Figure E-5b. Zoomed rectified signal for pXXL2 at 1Hz. Strain 1.0

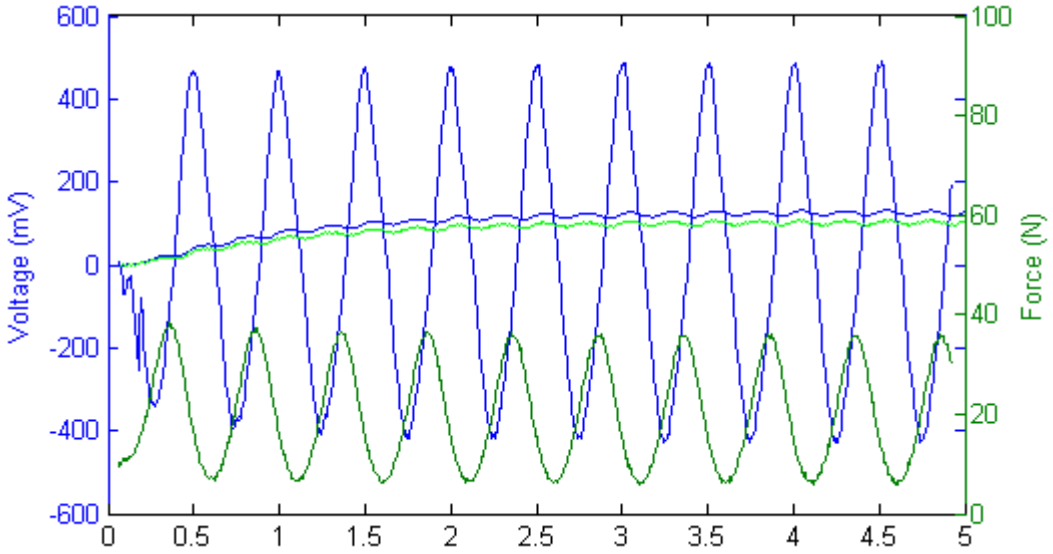

Figure E-6a. pXXL2 at 2Hz. Strain 1.0

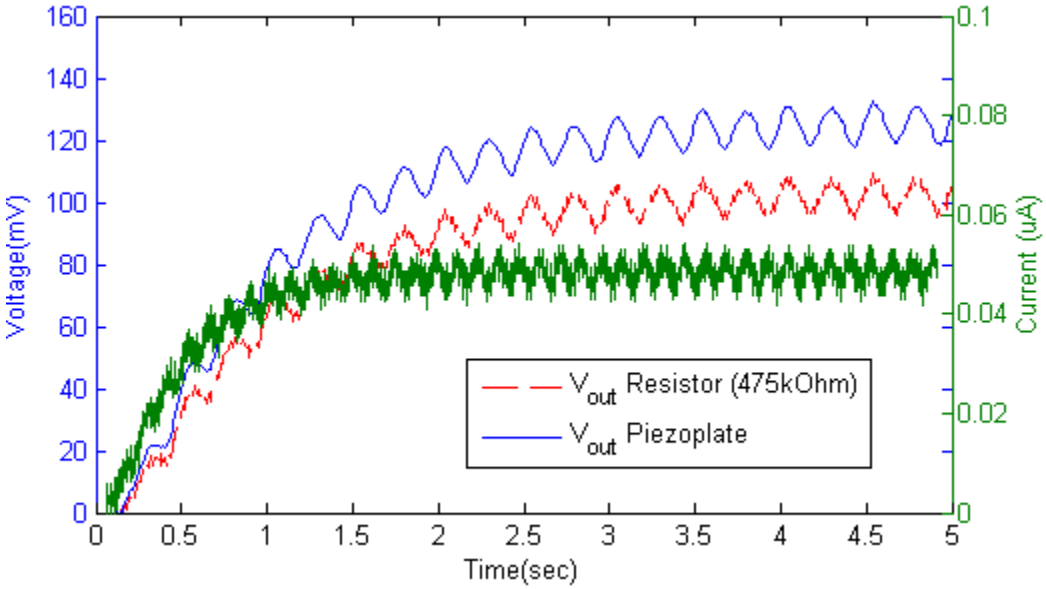

Figure E-6b. Zoomed rectified signal for pXXL2 at 2Hz. Strain 1.0

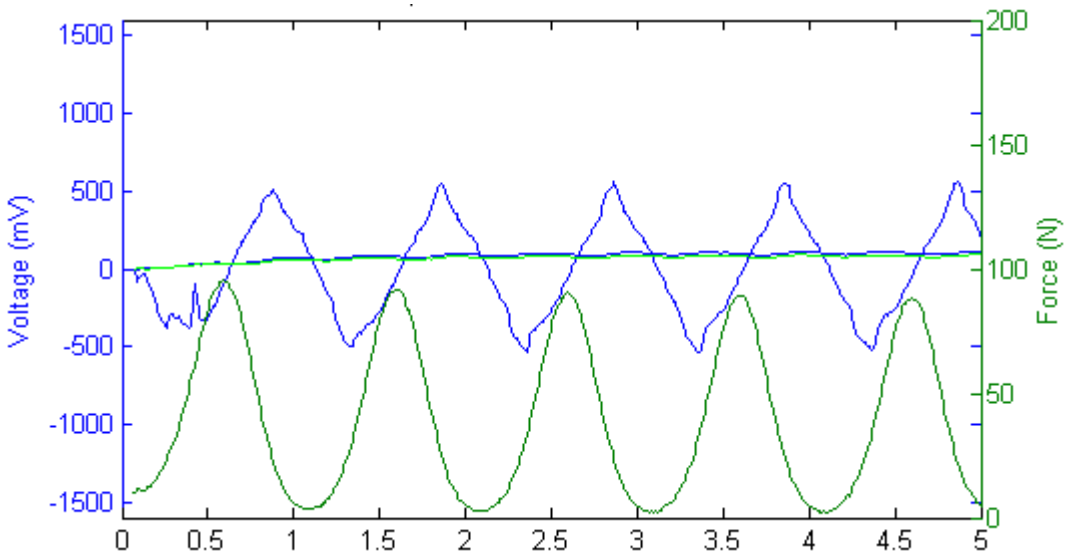

Figure E-7a. pXXL2 at 1Hz. Strain 2.0

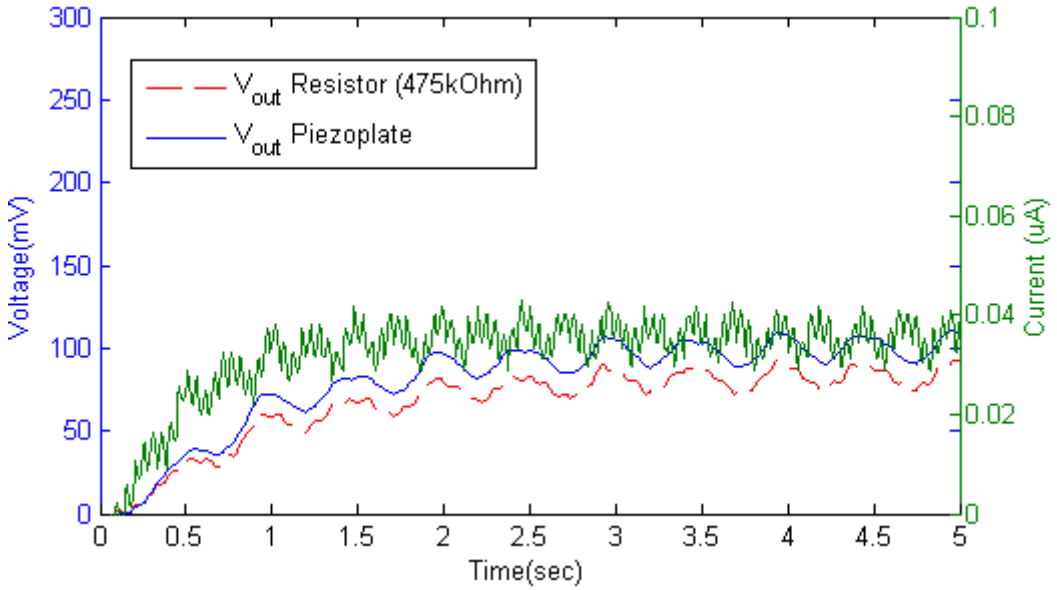

Figure E-7b. Zoomed rectified signal for pXXL2 at 1Hz. Strain 2.0

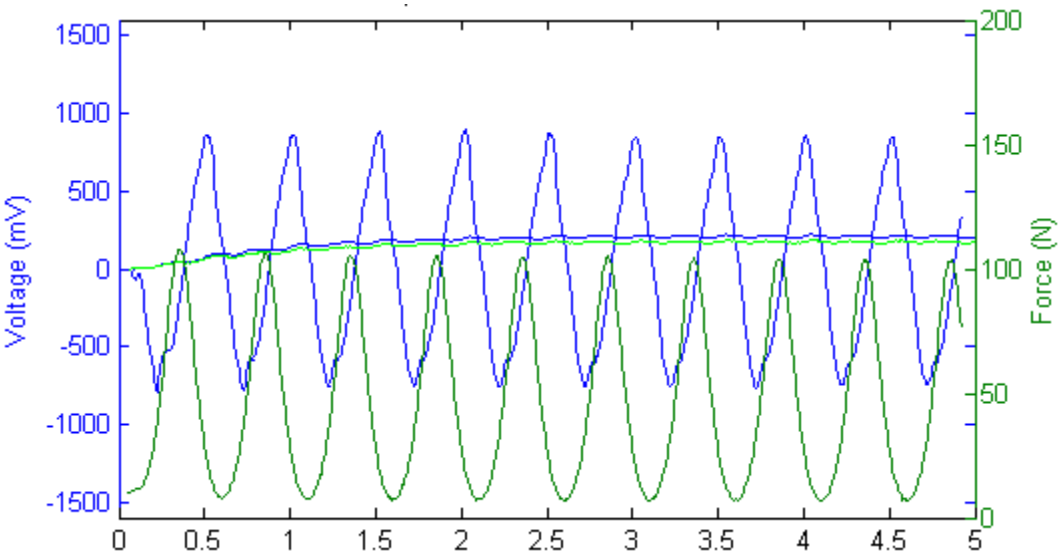

Figure E-8a. pXXL2 at 2Hz. Strain 2.0

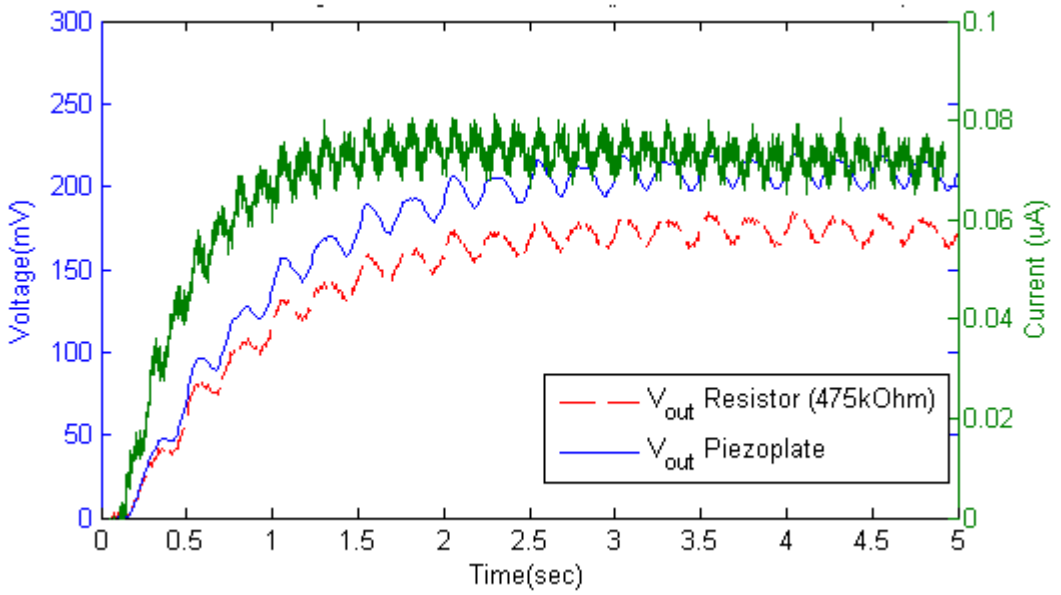

Figure E-8b. Zoomed rectified signal for pXXL2 at 2Hz. Strain 2.0

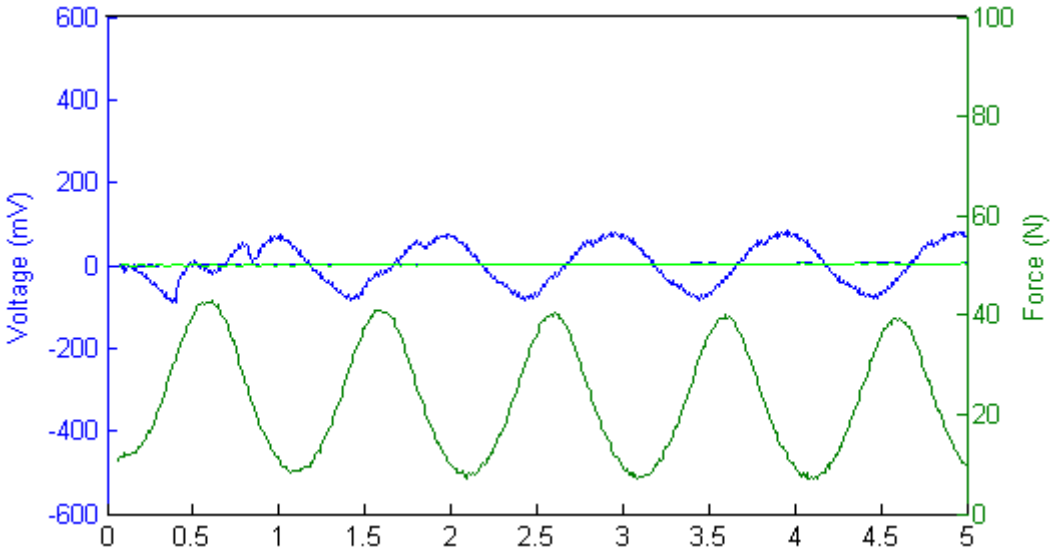

Figure E-9a. pXXL3 at 1Hz. Strain 1.0

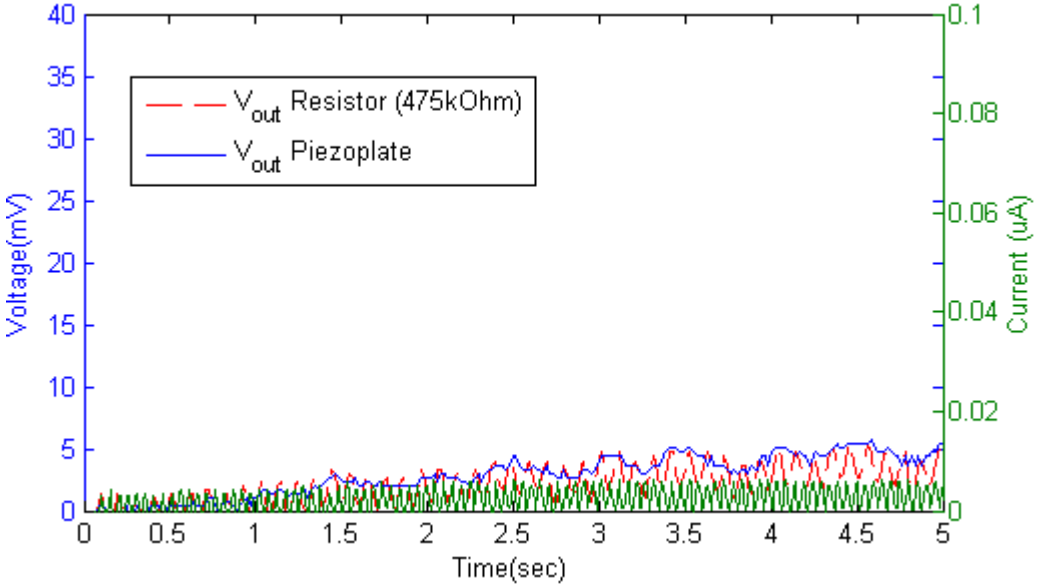

Figure E-9b. Zoomed rectified signal for pXXL3 at 1Hz. Strain 1.0

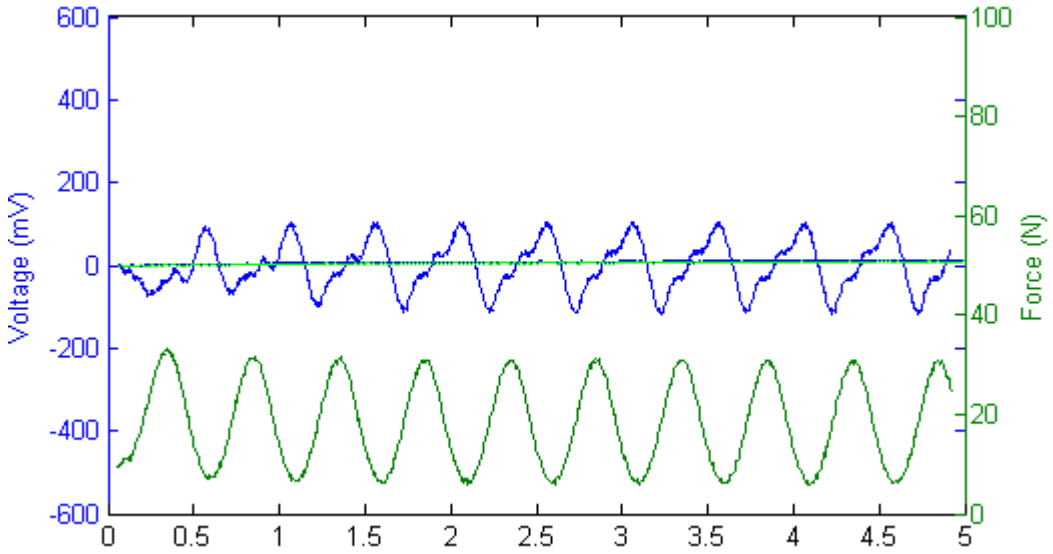

Figure E-10a. pXXL3 at 2Hz. Strain 1.0

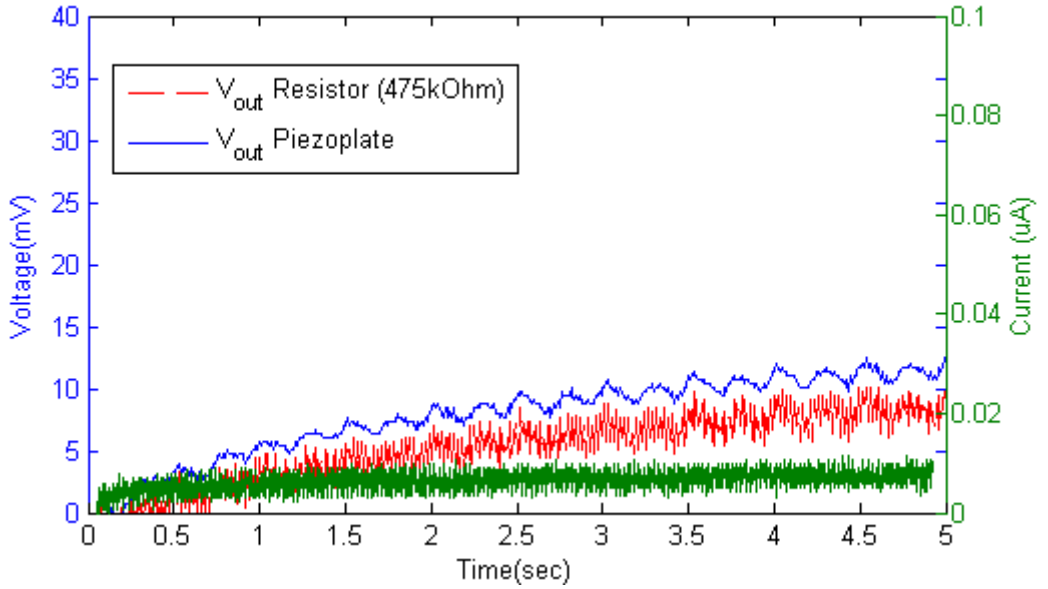

Figure E-10b. Zoomed rectified signal for pXXL3 at 2Hz. Strain 1.0

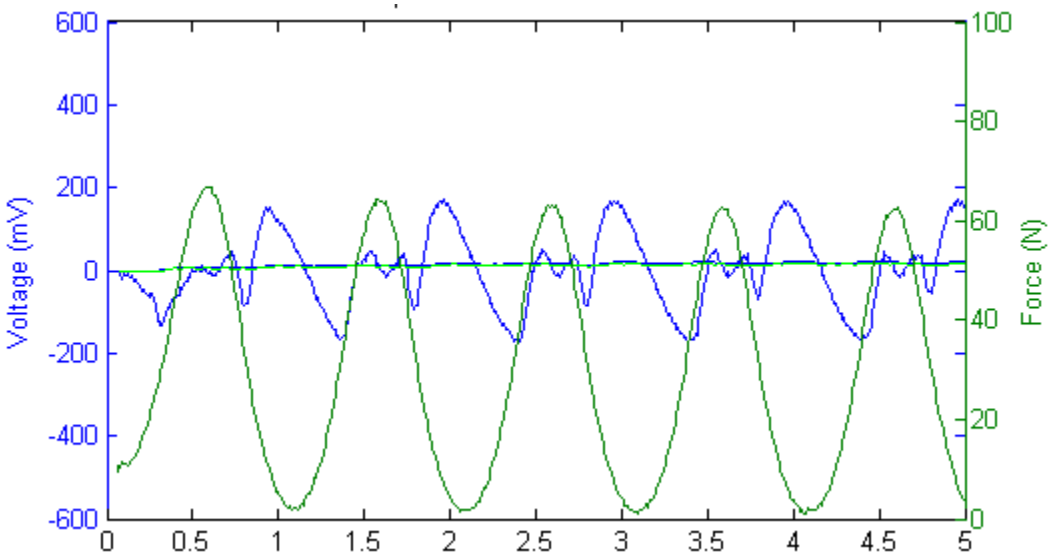

Figure E-11a. pXXL3 at 1Hz. Strain 2.0

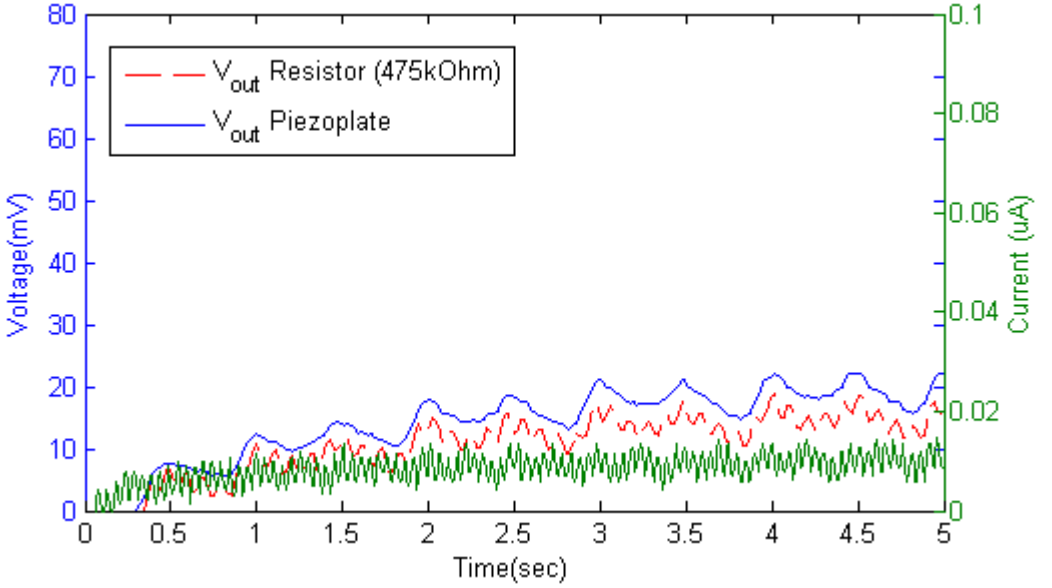

Figure E-11b. Zoomed rectified signal for pXXL3 at 1Hz. Strain 2.0

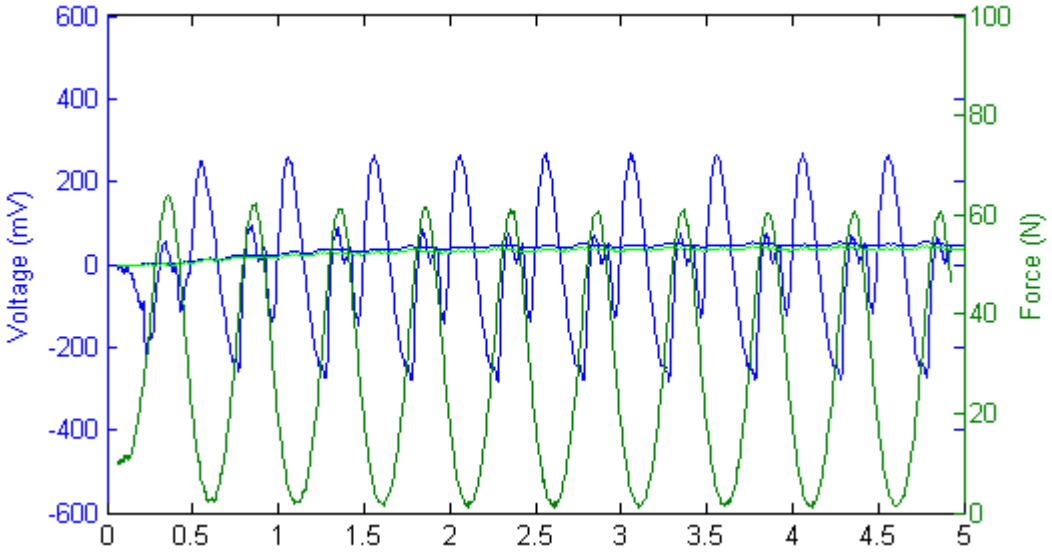

Figure E-12a. pXXL3 at 2Hz. Strain 2.0

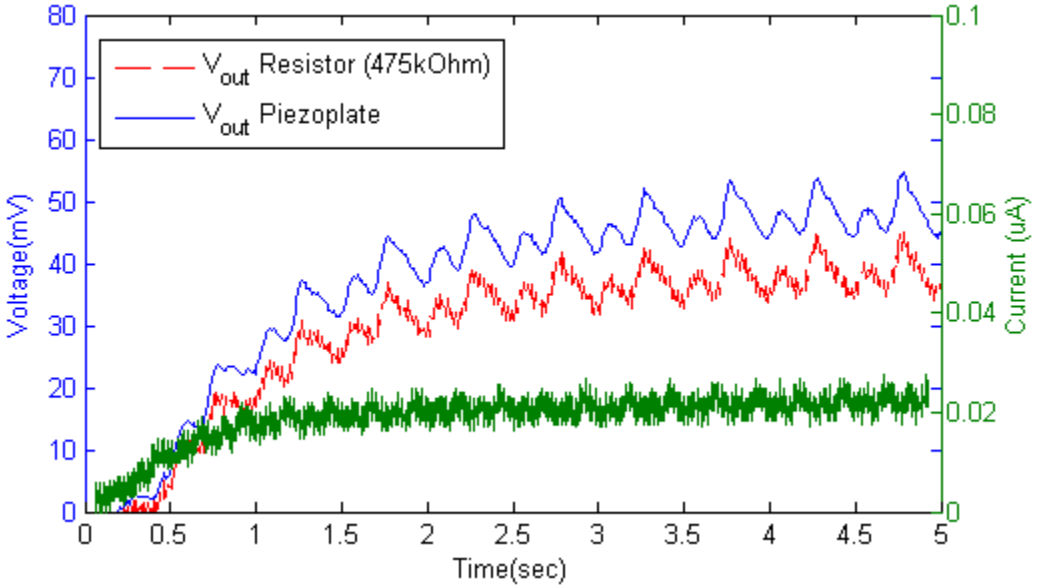

Figure E-12b. Zoomed rectified signal for pXXL3 at 2Hz. Strain 2.0

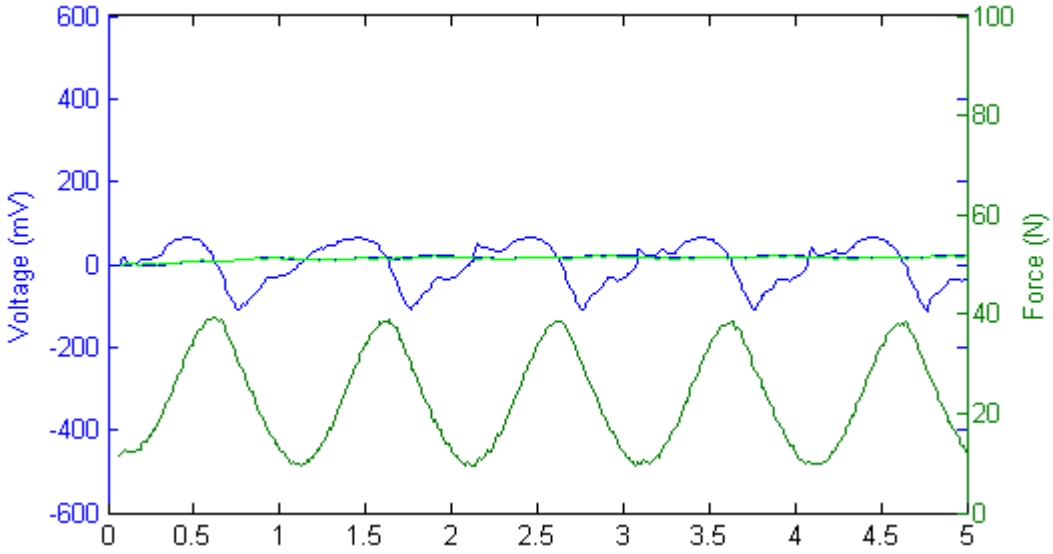

Figure E-13a. pXXL4 at 1Hz. Strain 1.0

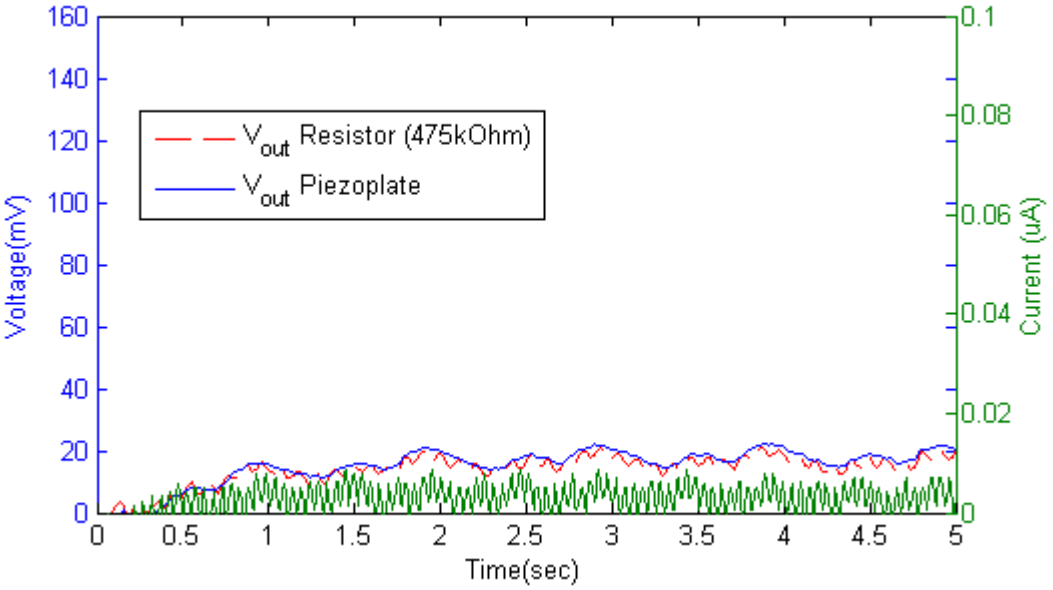

Figure E-13b. Zoomed rectified signal for pXXL4 at 1Hz. Strain 1.0

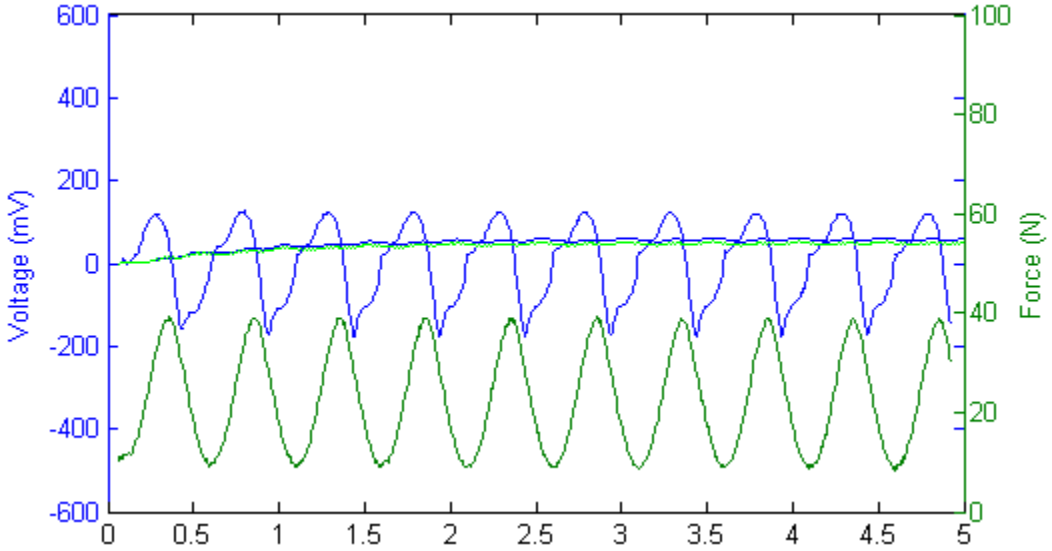

Figure E-14a. pXXL4 at 2Hz. Strain 1.0

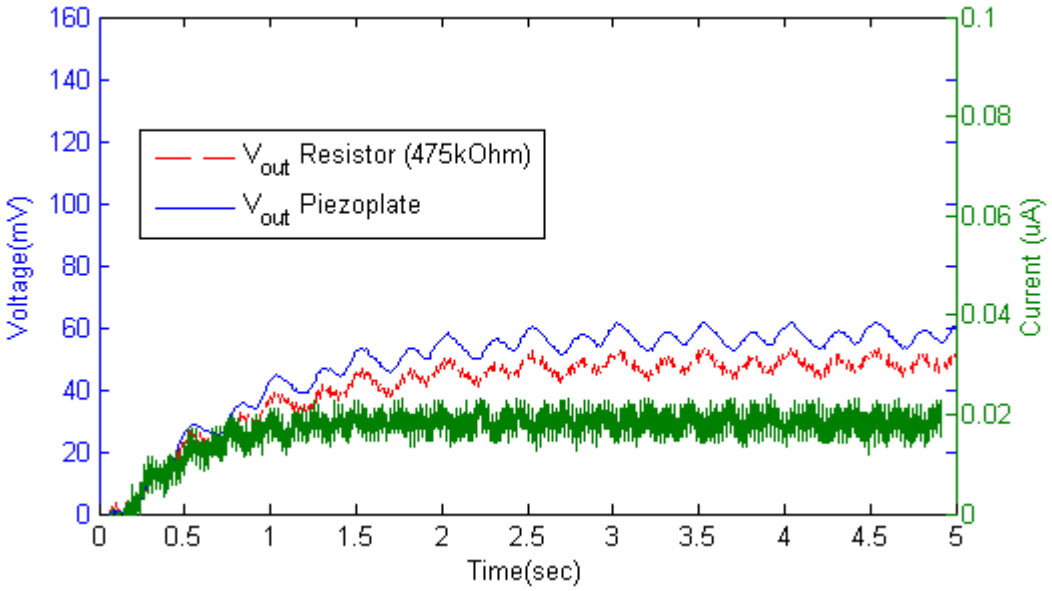

Figure E-14b. Zoomed rectified signal for pXXL4 at 2Hz. Strain 1.0

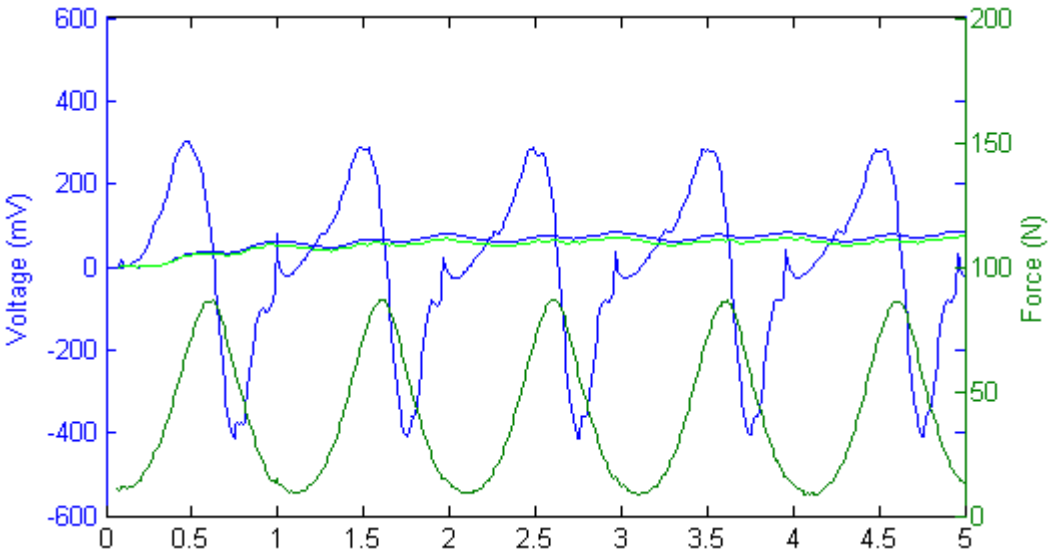

Figure E-15a. pXXL4 at 1Hz. Strain 2.0

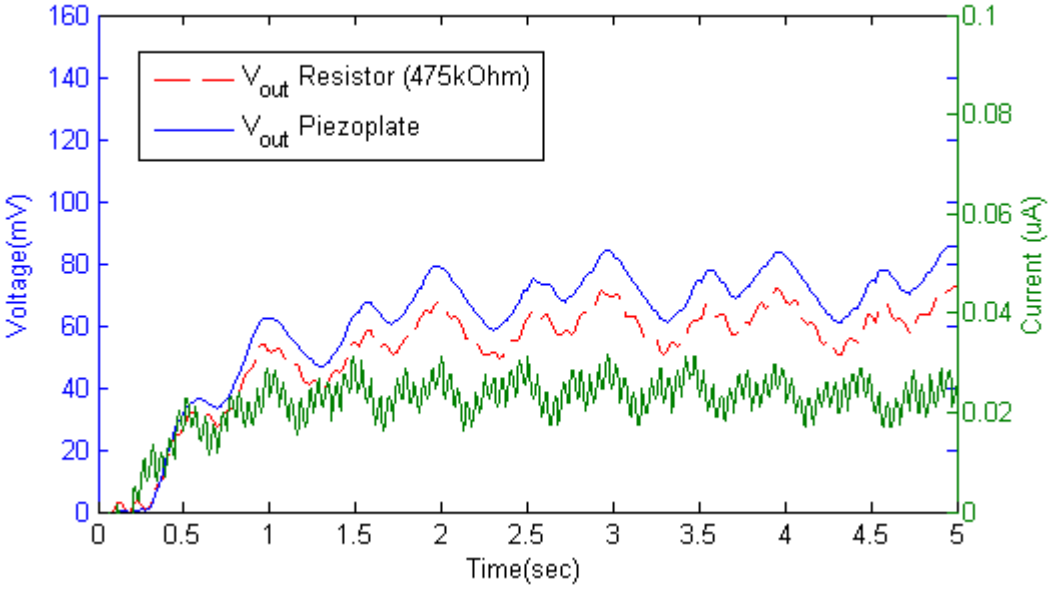

Figure E-15b. Zoomed rectified signal for pXXL4 at 1Hz. Strain 2.0

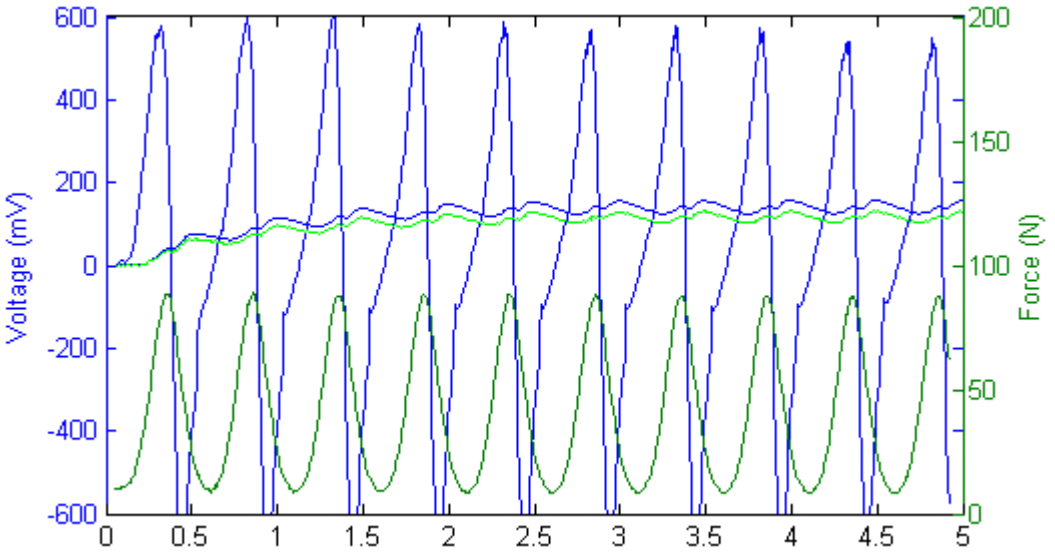

Figure E-16a. pXXL4 at 2Hz. Strain 2.0

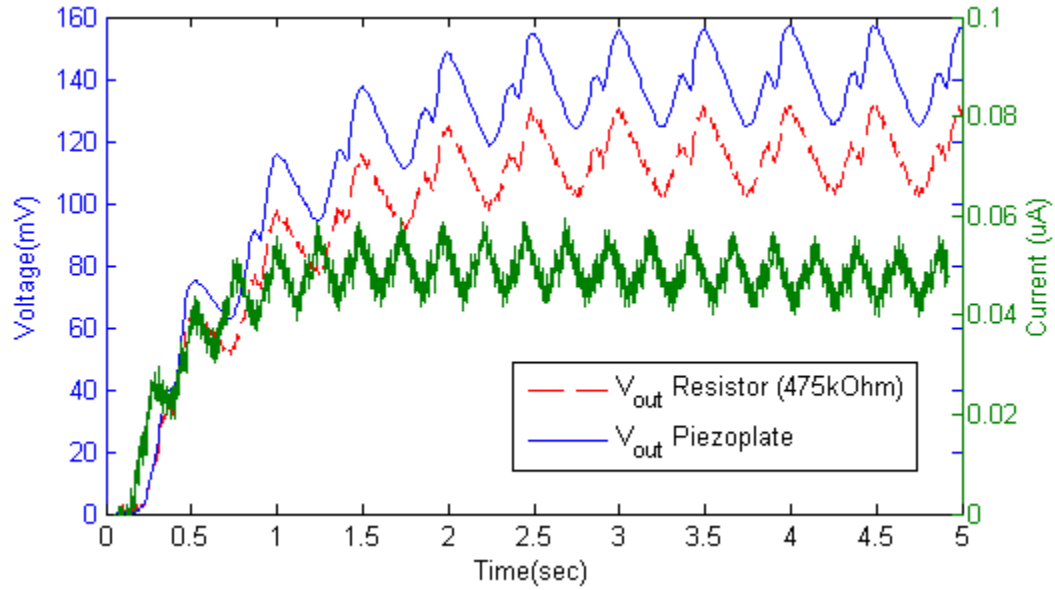

Figure E-16b. Zoomed rectified signal for pXXL4 at 2Hz. Strain 2.0

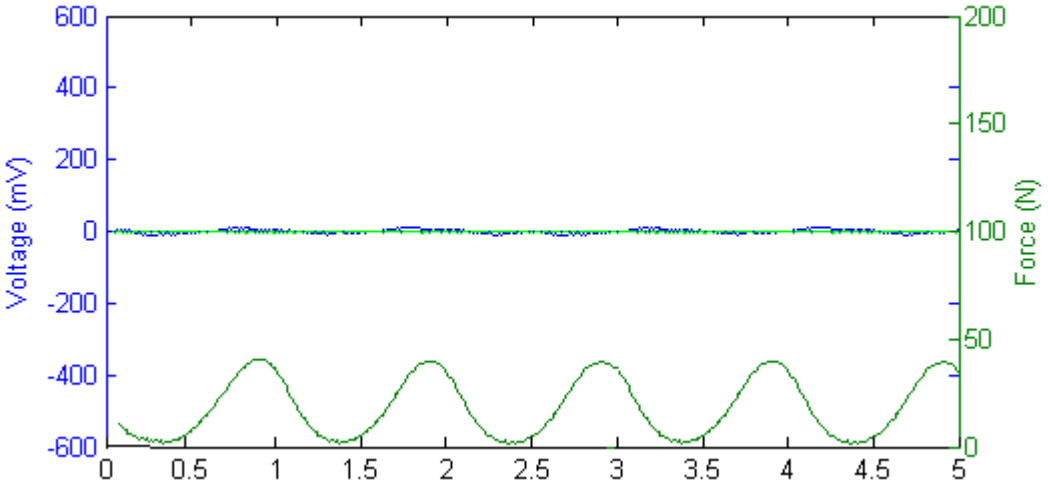

Figure E-17a. pXXL5 at 1Hz. Strain 1.0

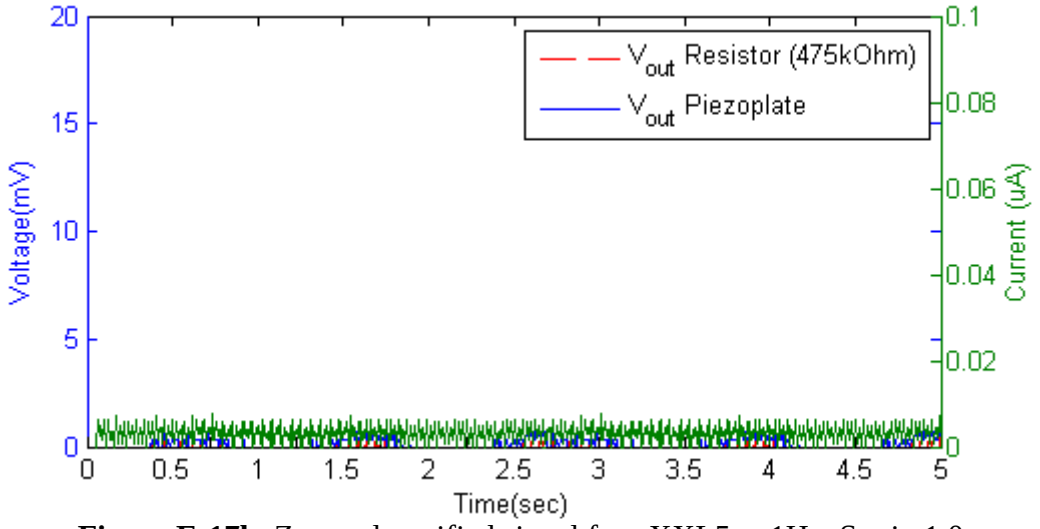

Figure E-17b. Zoomed rectified signal for pXXL5 at 1Hz. Strain 1.0

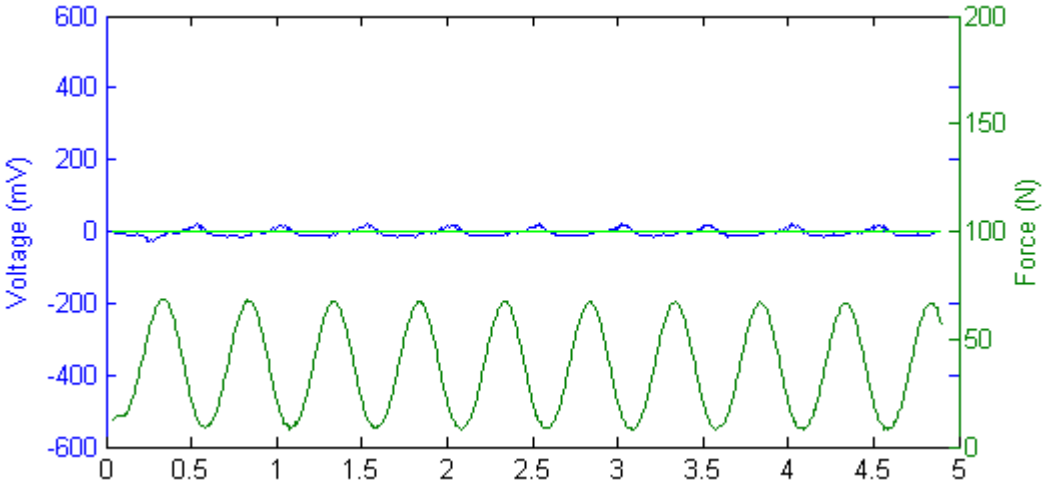

Figure E-18a. pXXL5 at 2Hz. Strain 1.0

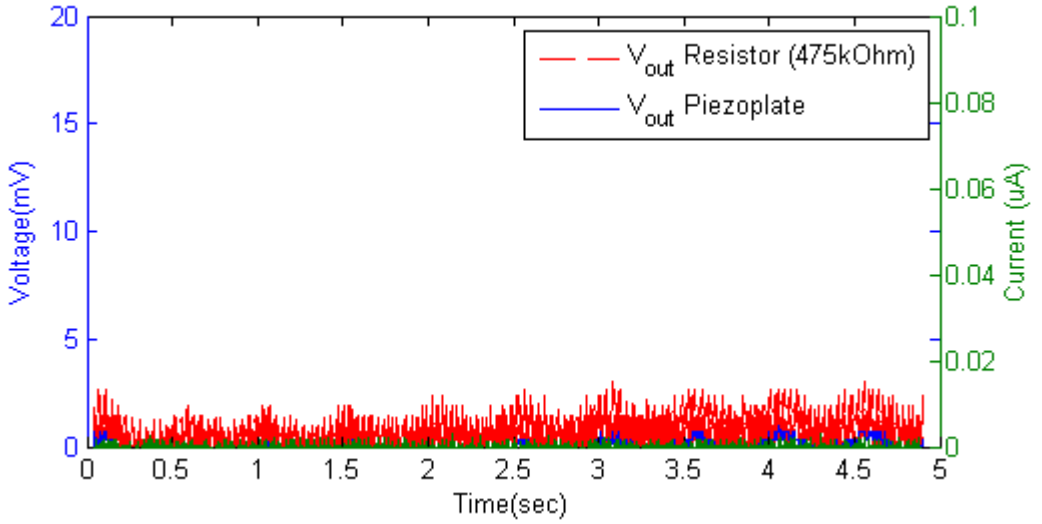

Figure E-18b. Zoomed rectified signal for pXXL5 at 2Hz. Strain 1.0

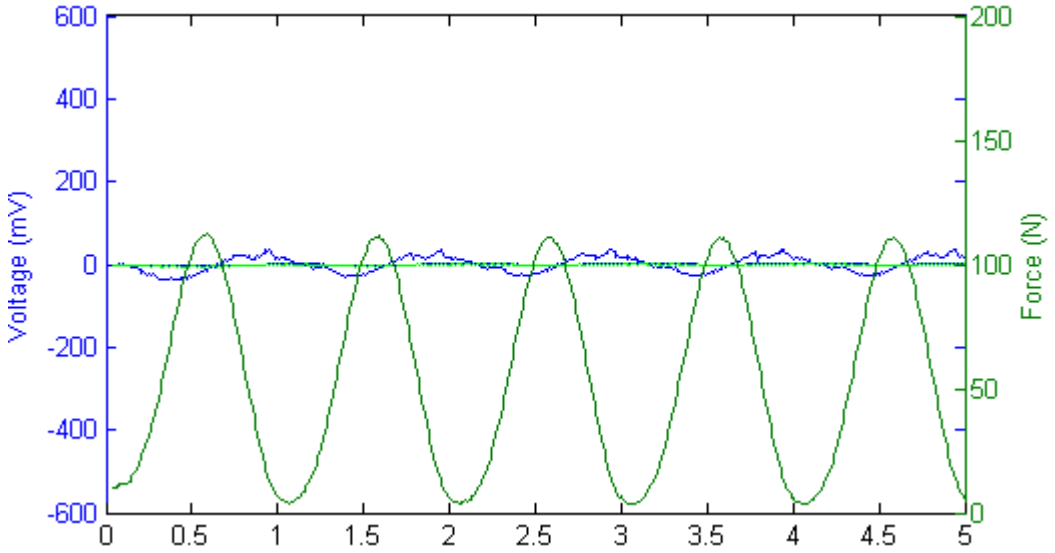

Figure E-19a. pXXL5 at 1Hz. Strain 2.0

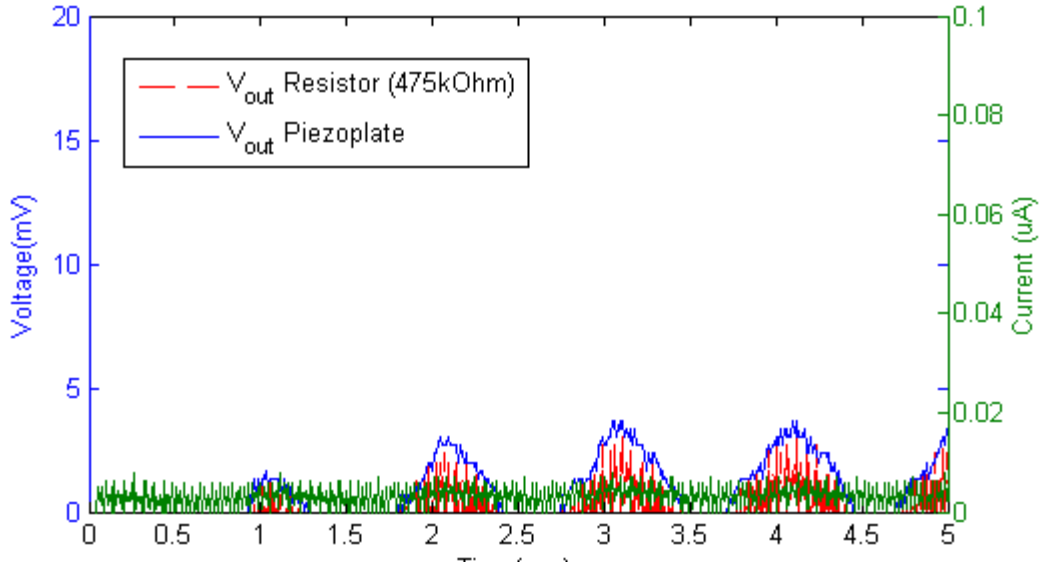

Figure E-19b. Zoomed rectified signal for pXXL5 at 1Hz. Strain 2.0

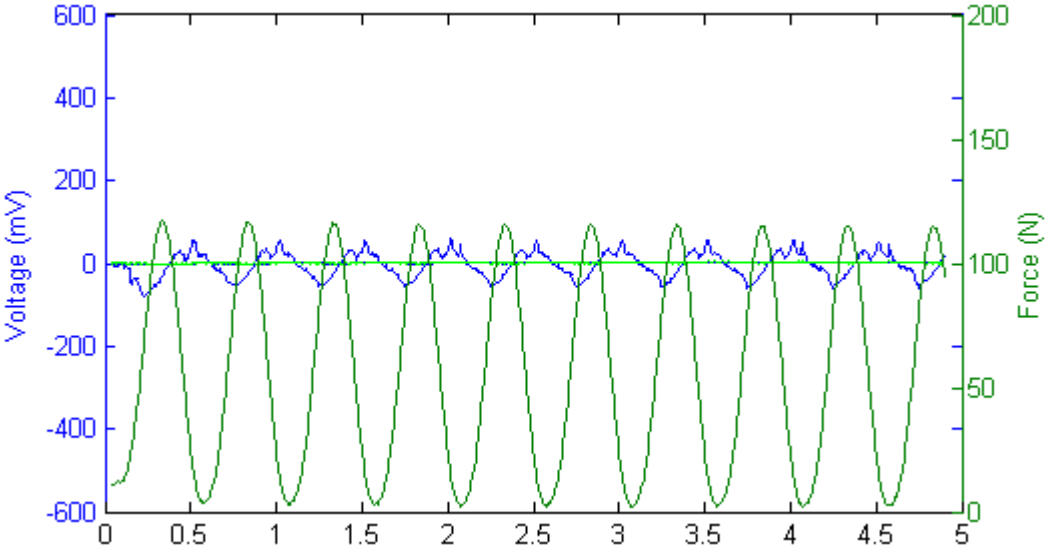

Figure E-20a. pXXL5 at 2Hz. Strain 2.0

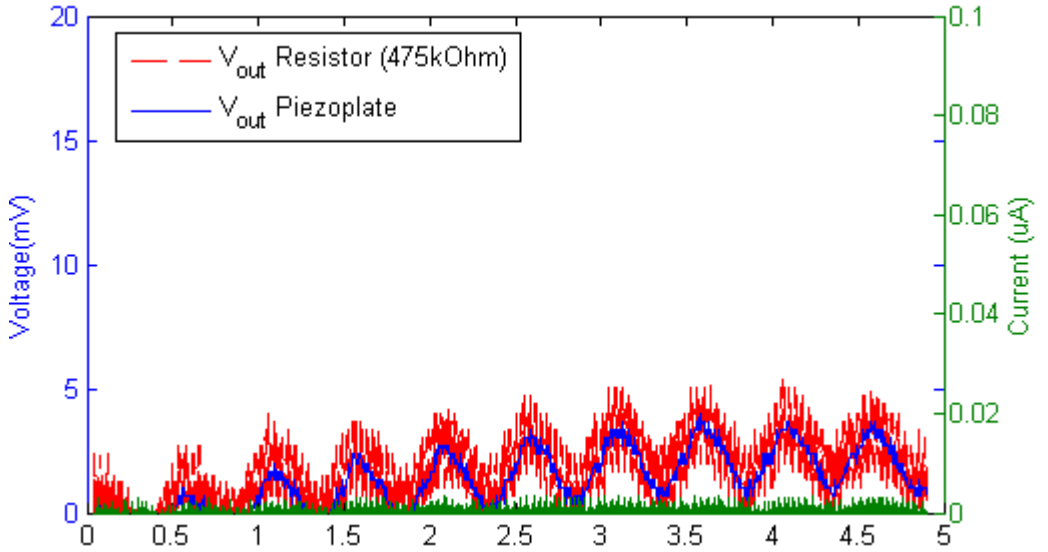

Figure E-20b. Zoomed rectified signal for pXXL5 at 2Hz. Strain 2.0

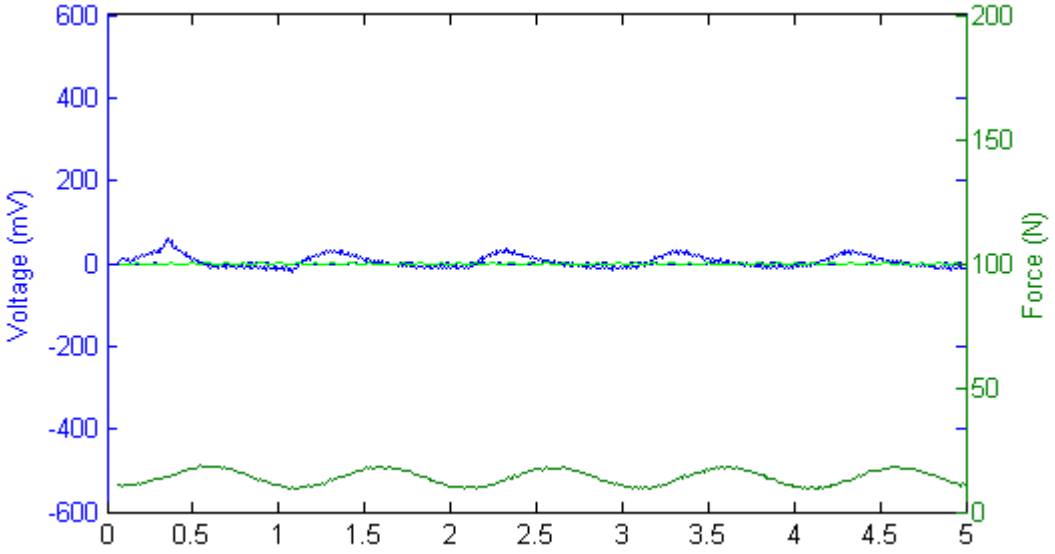

Figure E-21. pXL1 at 1Hz. Strain 1.0

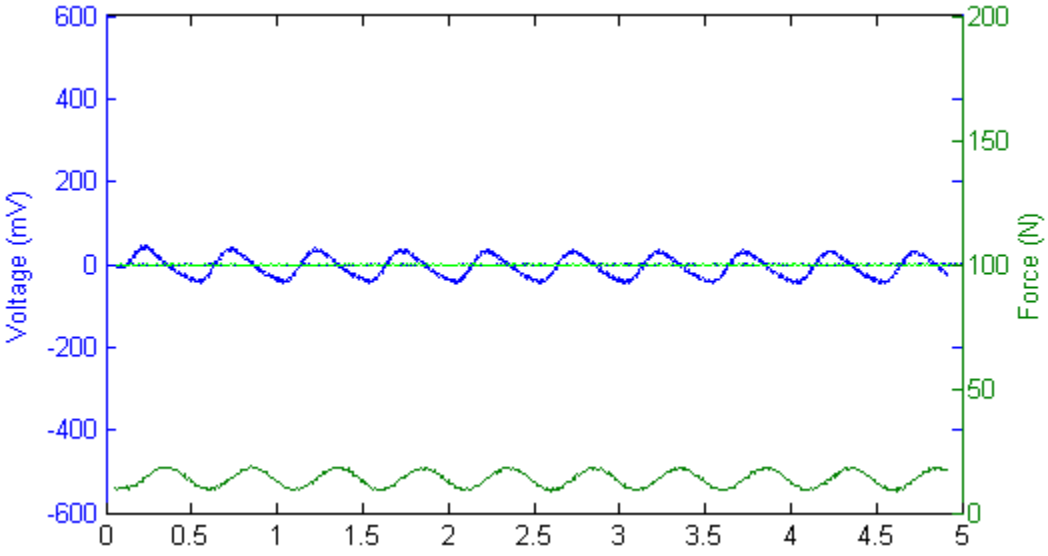

Figure E-22. pXL1 at 2Hz. Strain 1.0

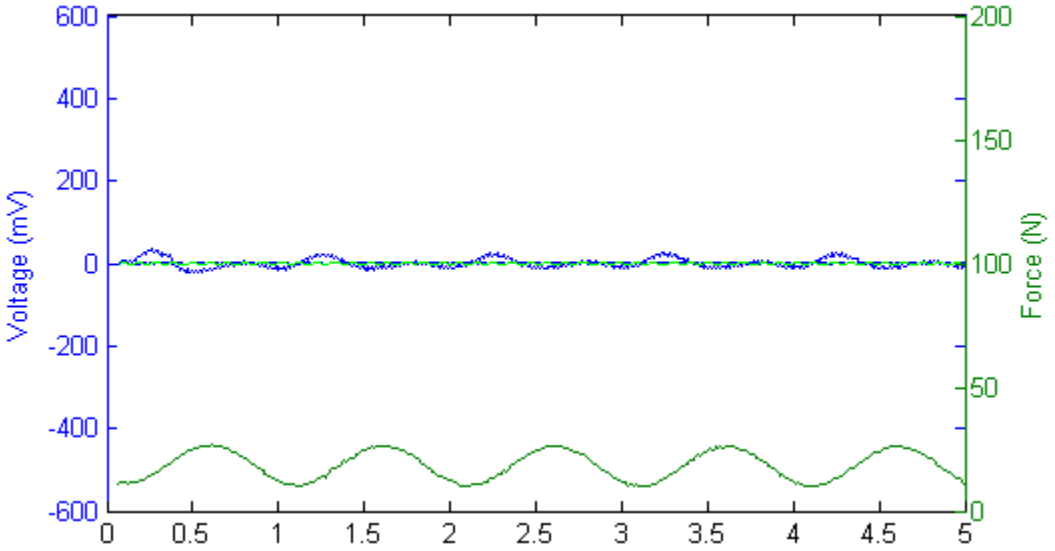

Figure E-23. pXL1 at 1Hz. Strain 2.0

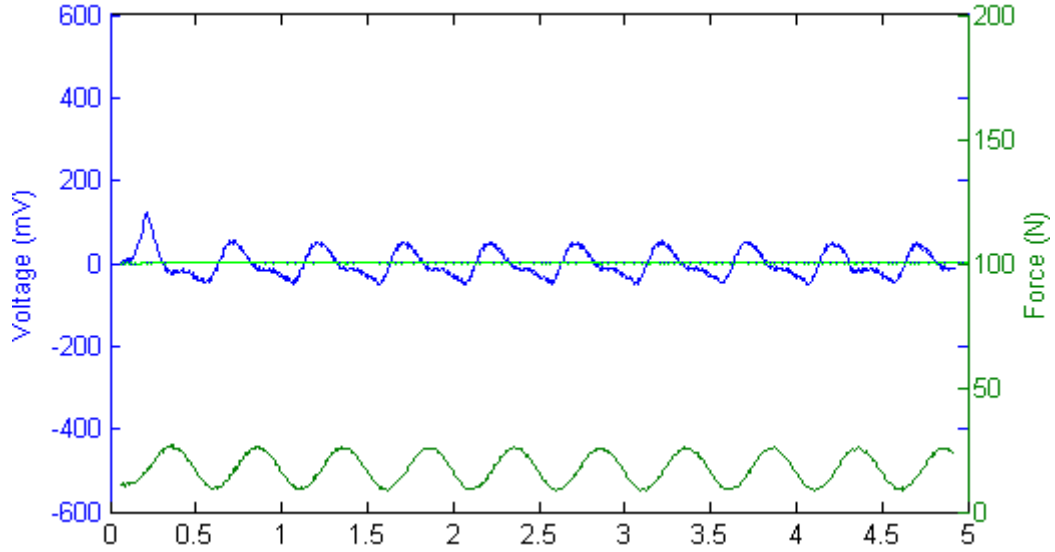

Figure E-24. pXL1 at 2Hz. Strain 2.0

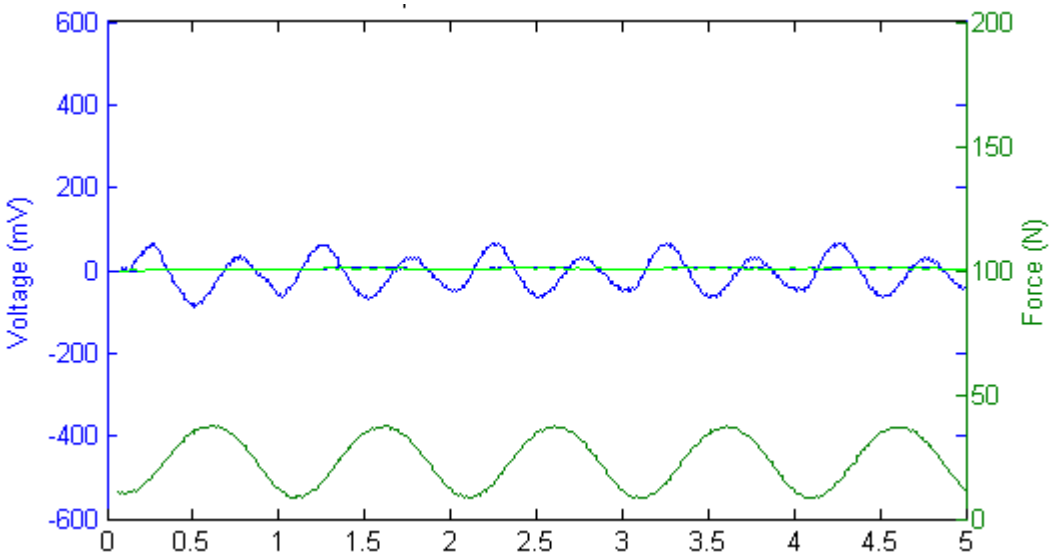

Figure E-25a. pXL1 at 1Hz. Strain 4.0

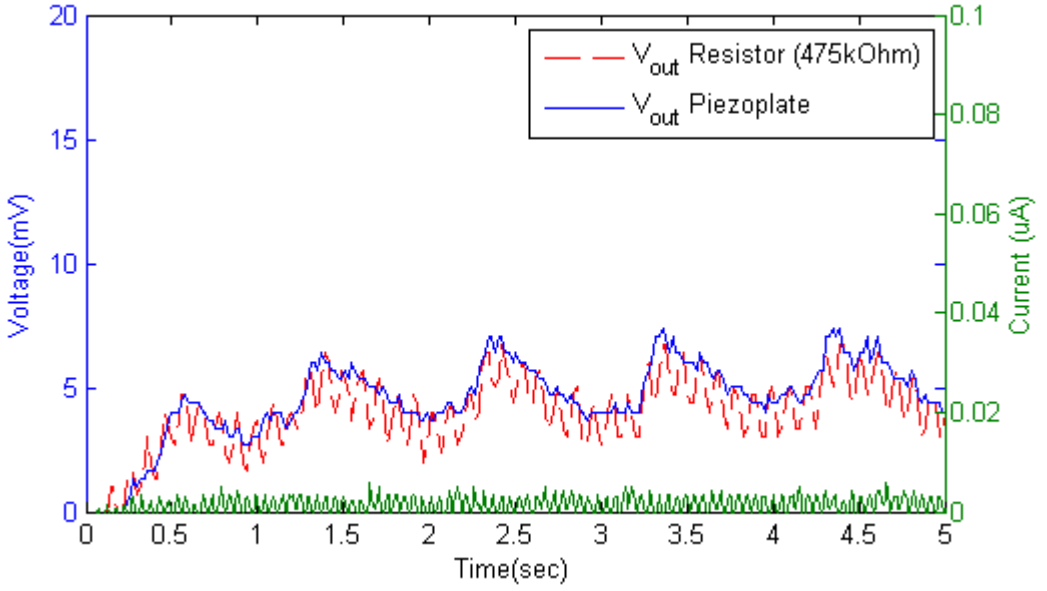

Figure E-25b. Zoomed rectified signal for pXL1 at 1Hz. Strain 4.0

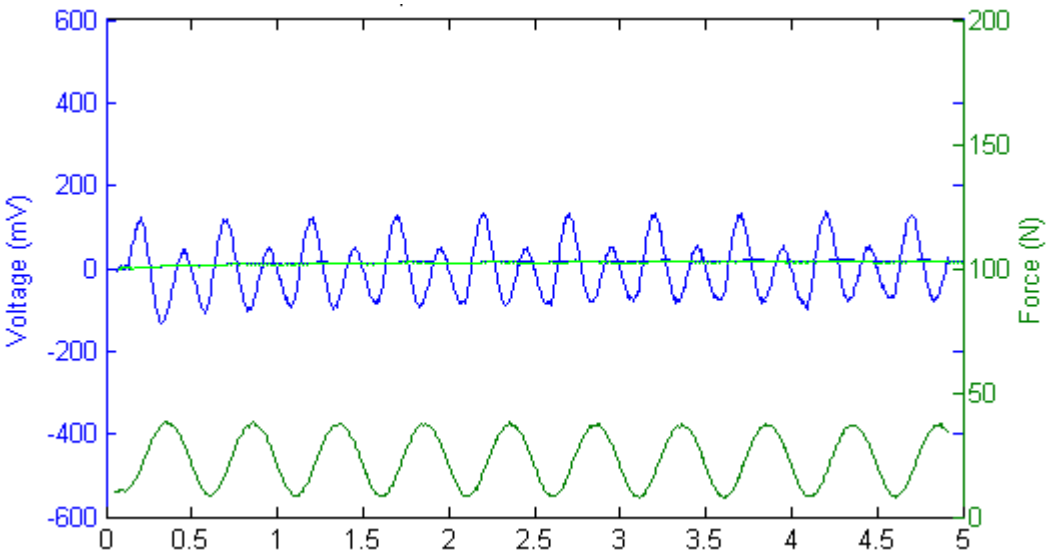

Figure E-26a. pXL1 at 2Hz. Strain 4.0

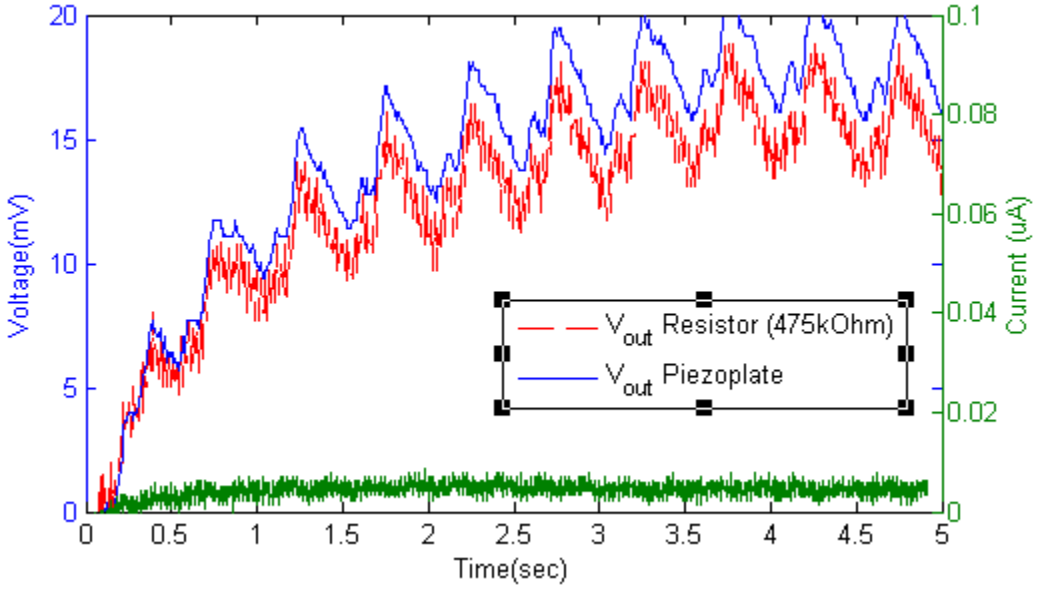

Figure E-26b. Zoomed rectified signal for pXL1 at 2Hz. Strain 4.0

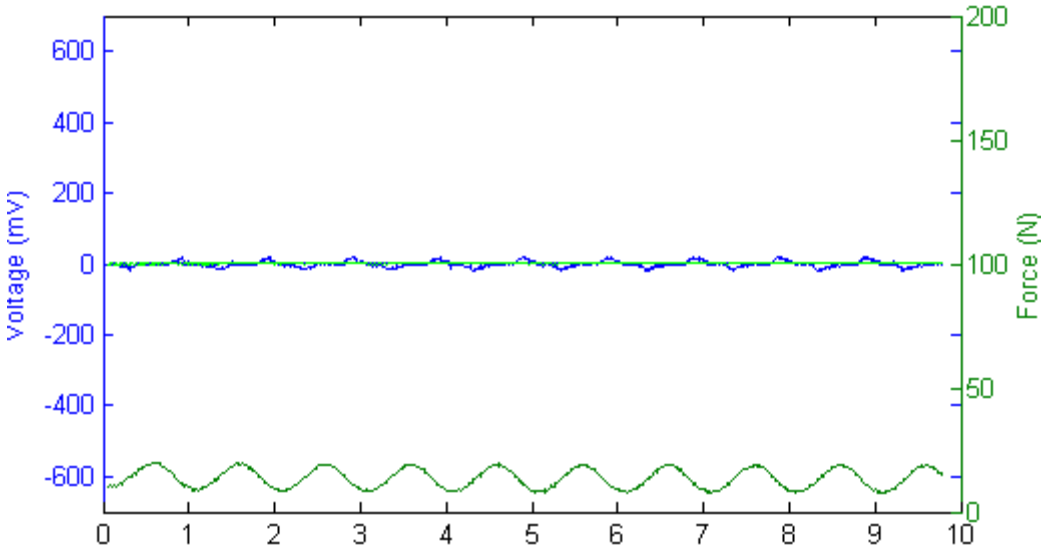

Figure E-27. pXL2 at 1Hz. Strain 2.0

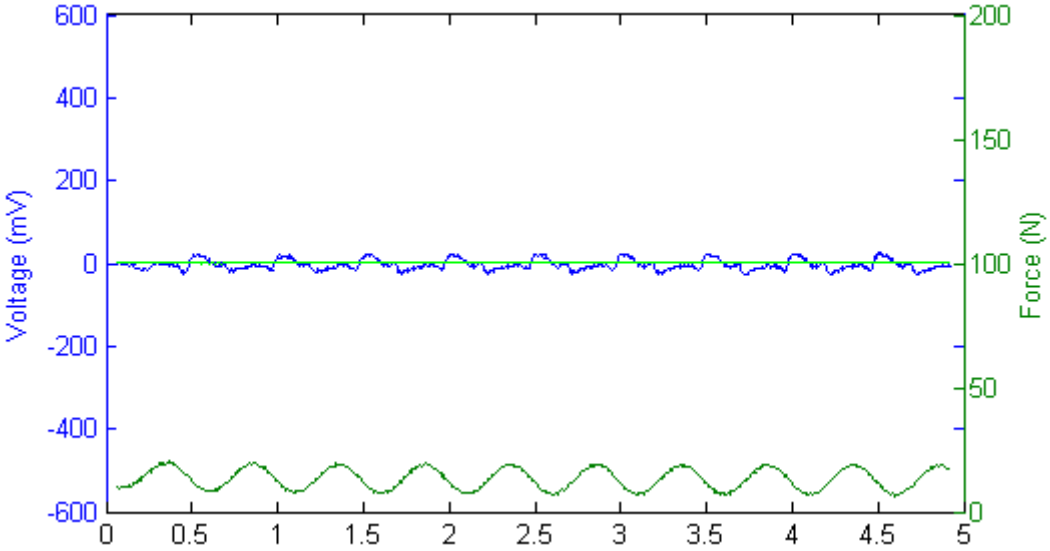

Figure E-28. pXL2 at 2Hz. Strain 2.0

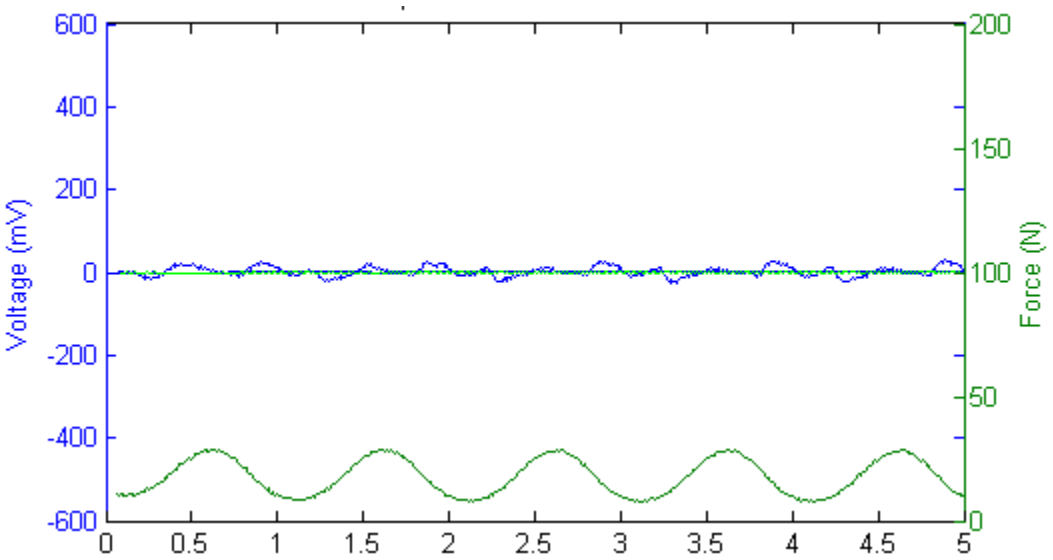

Figure E-29a. pXL2 at 1Hz. Strain 4.0

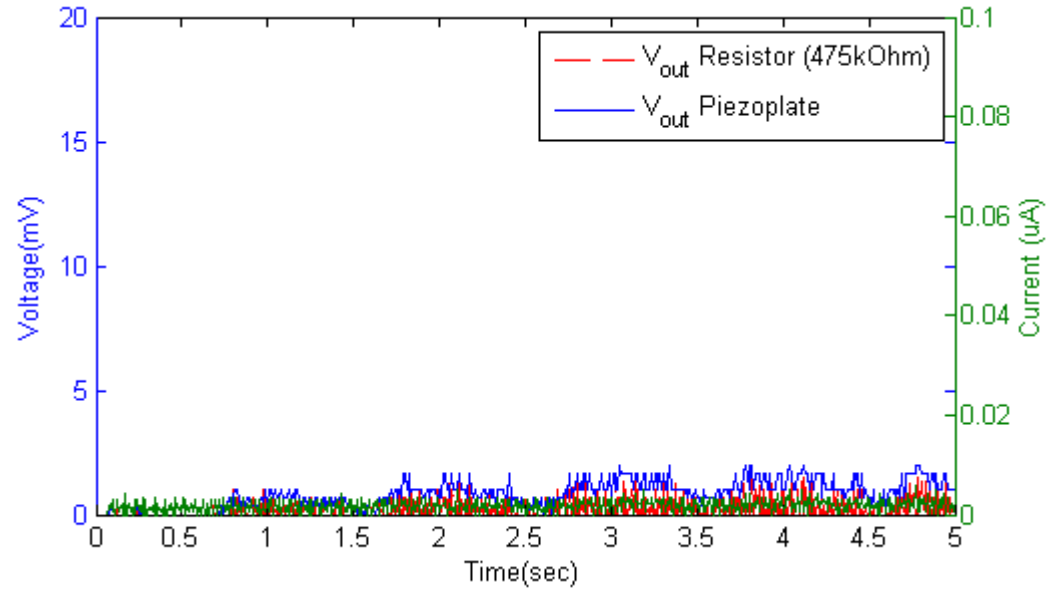

Figure E-29b. Zoomed rectified signal for pXL2 at 1Hz. Strain 4.0

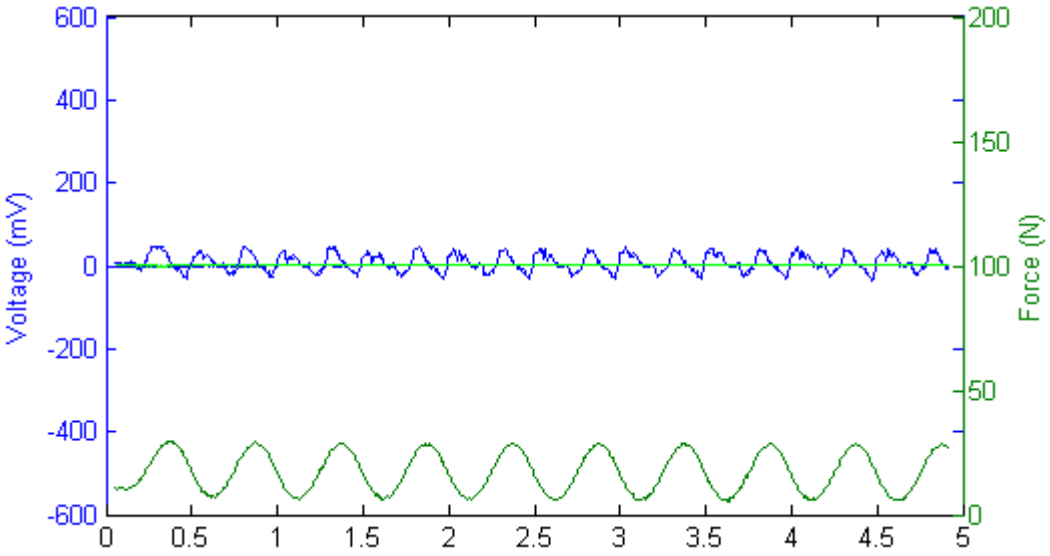

Figure E-30a. pXL2 at 2Hz. Strain 4.0

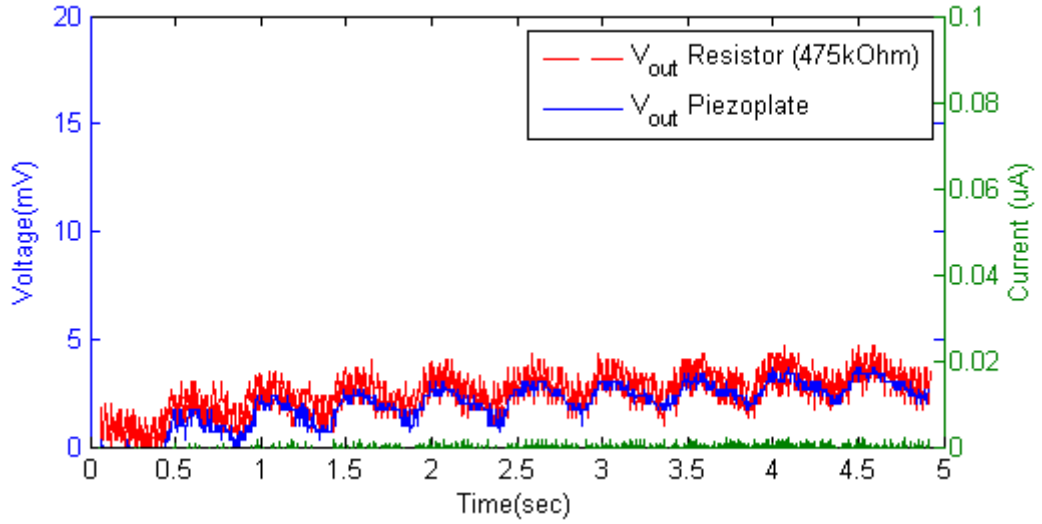

Figure E-30b. Zoomed rectified signal for pXL2 at 2Hz. Strain 4.0

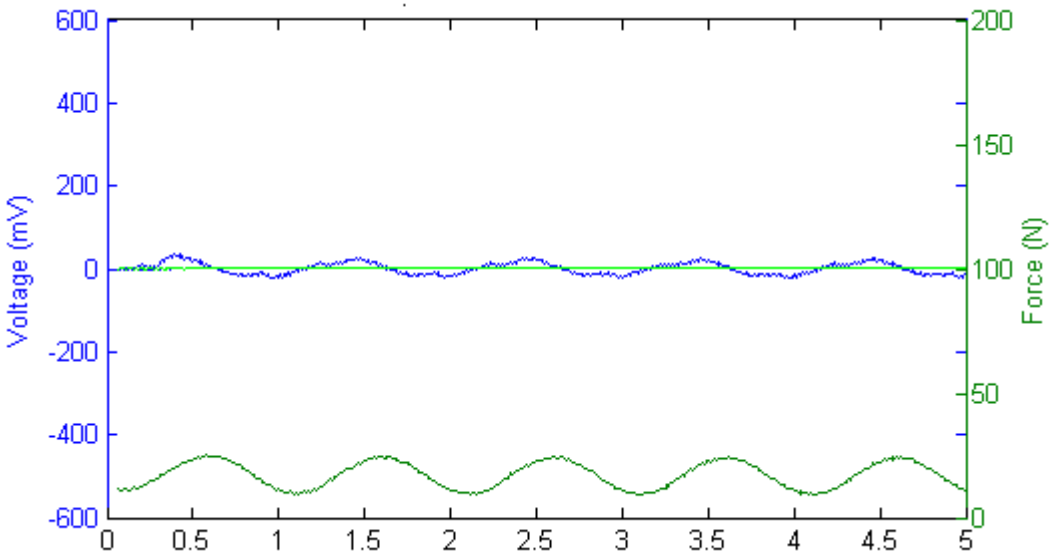

Figure E-31. pXL3 at 1Hz. Strain 2.0

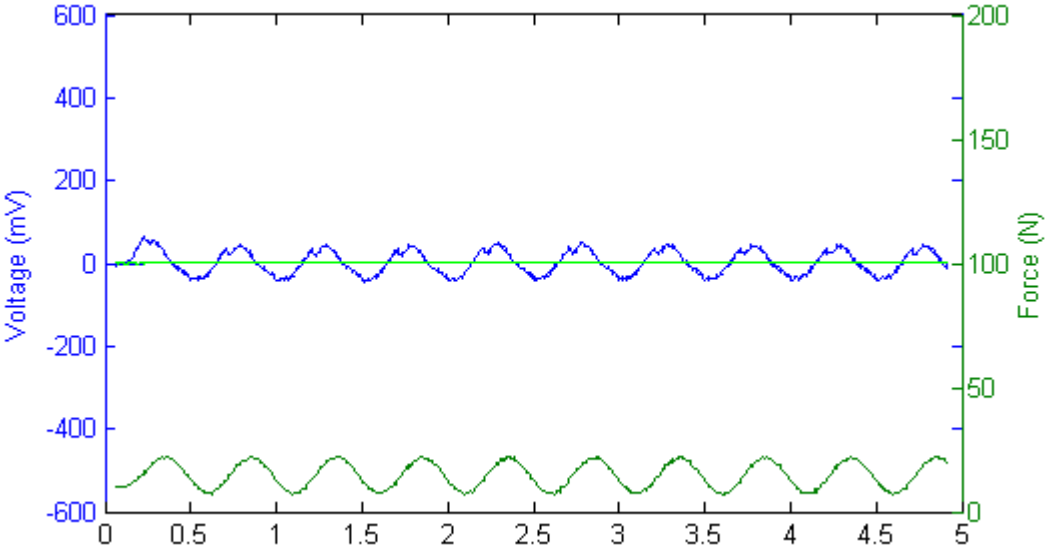

Figure E-32. pXL3 at 2Hz. Strain 2.0

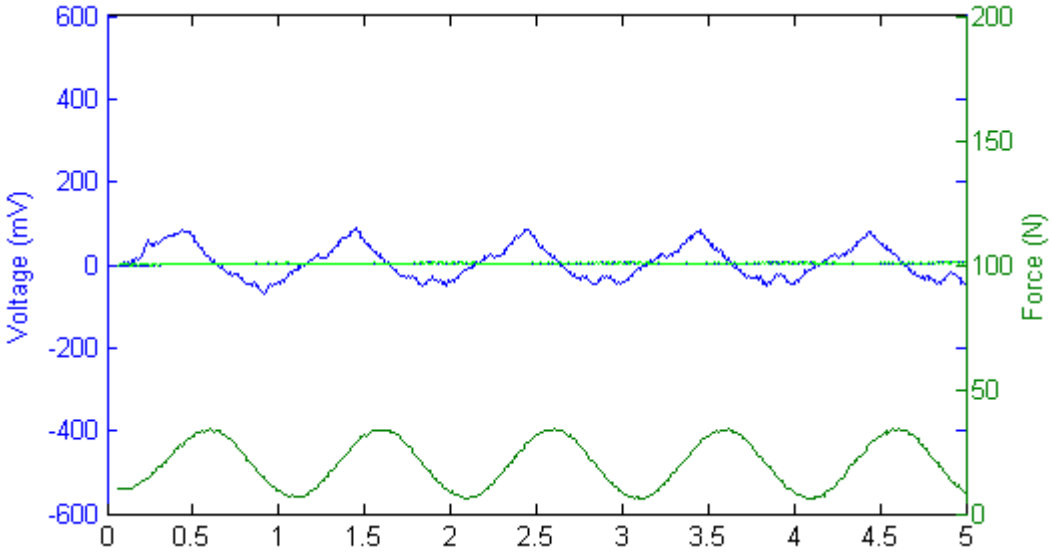

Figure E-33a. pXL3 at 1Hz. Strain 4.0

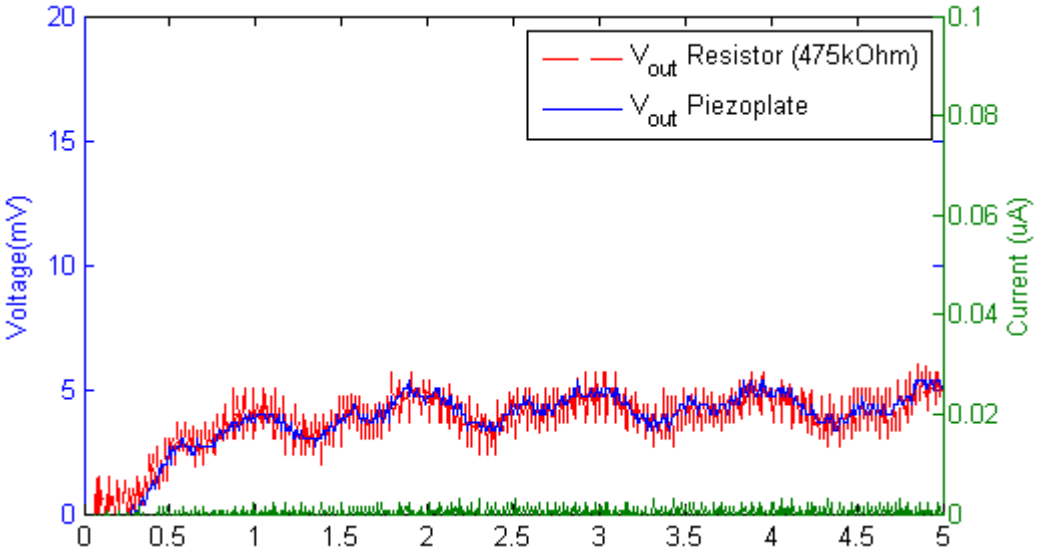

Figure E-33b. Zoomed rectified signal for pXL3 at 1Hz. Strain 4.0

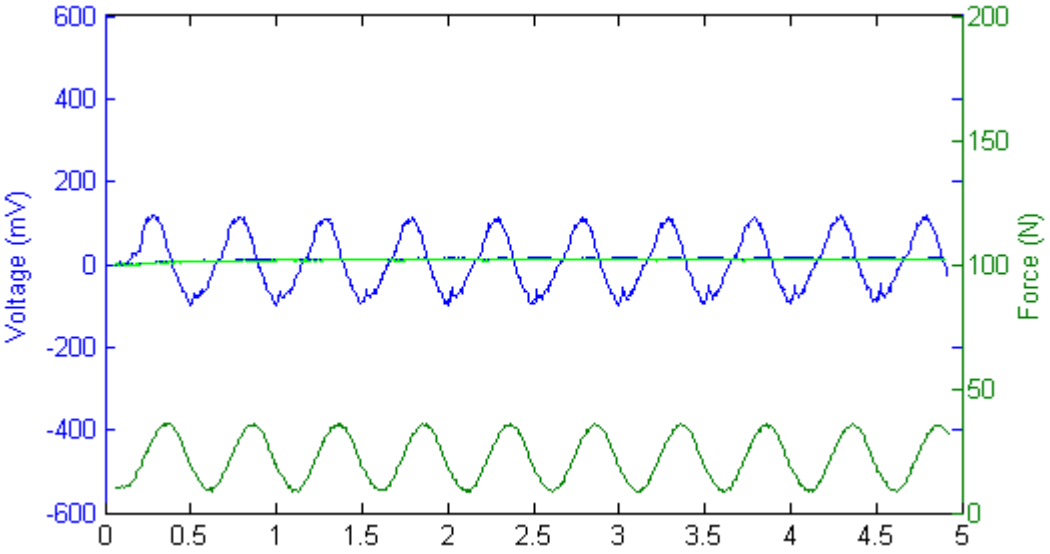

Figure E-34a. pXL3 at 2Hz. Strain 4.0

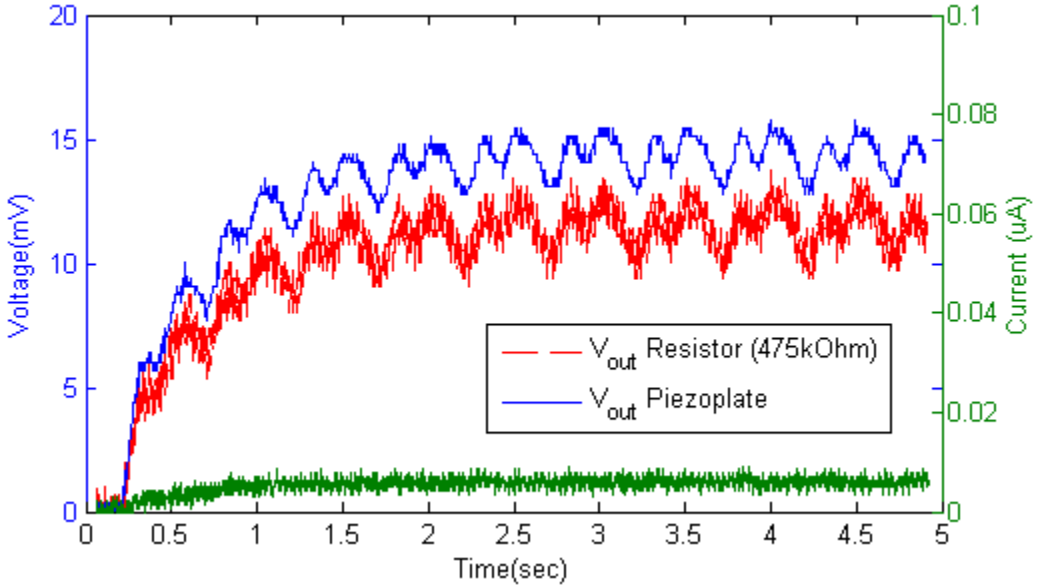

Figure E-34b. Zoomed rectified signal for pXL3 at 2Hz. Strain 4.0

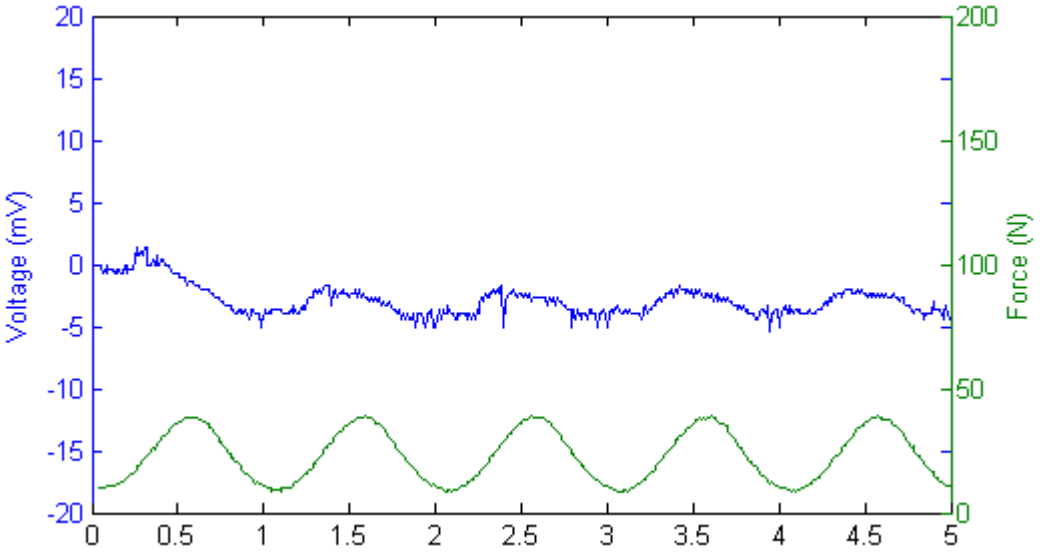

Figure E-35. Zoomed signal for pXL4 at 1Hz. Strain 4.0 (signal was very poor).

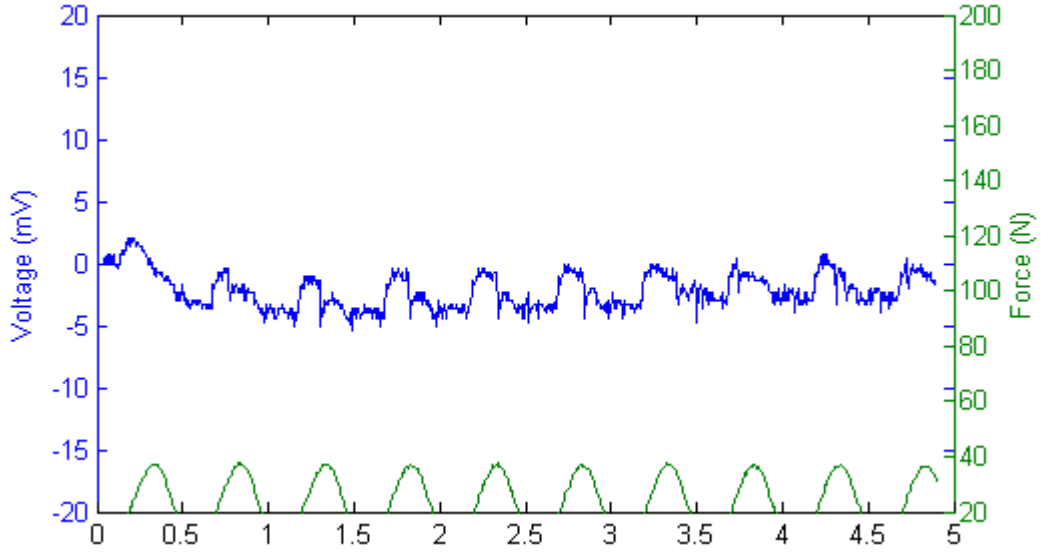

Figure E-36. Zoomed signal for pXL4 at 2Hz. Strain 4.0 (signal was very poor).

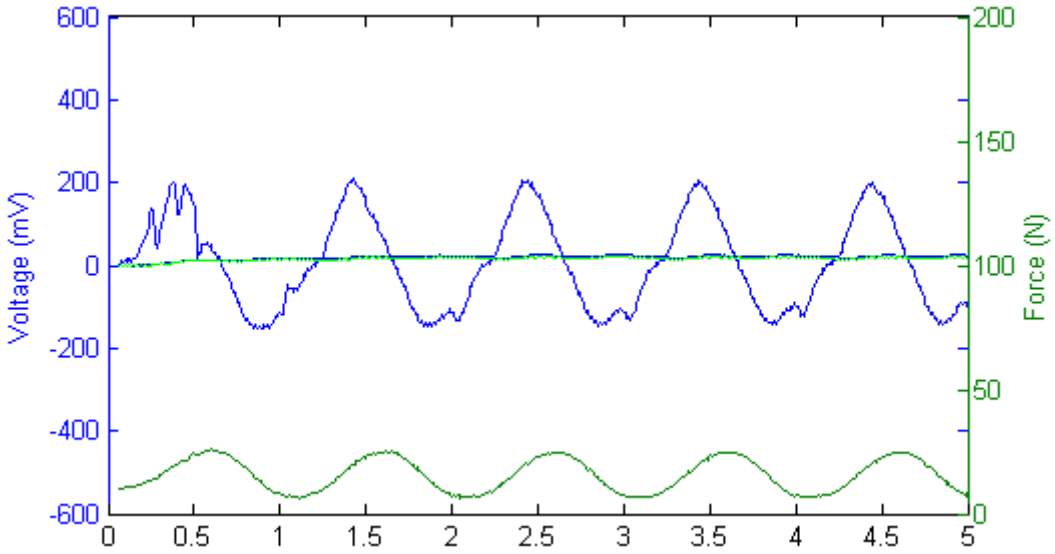

Figure E-37a .signal for pXL5 at 1Hz. Strain 2.0.

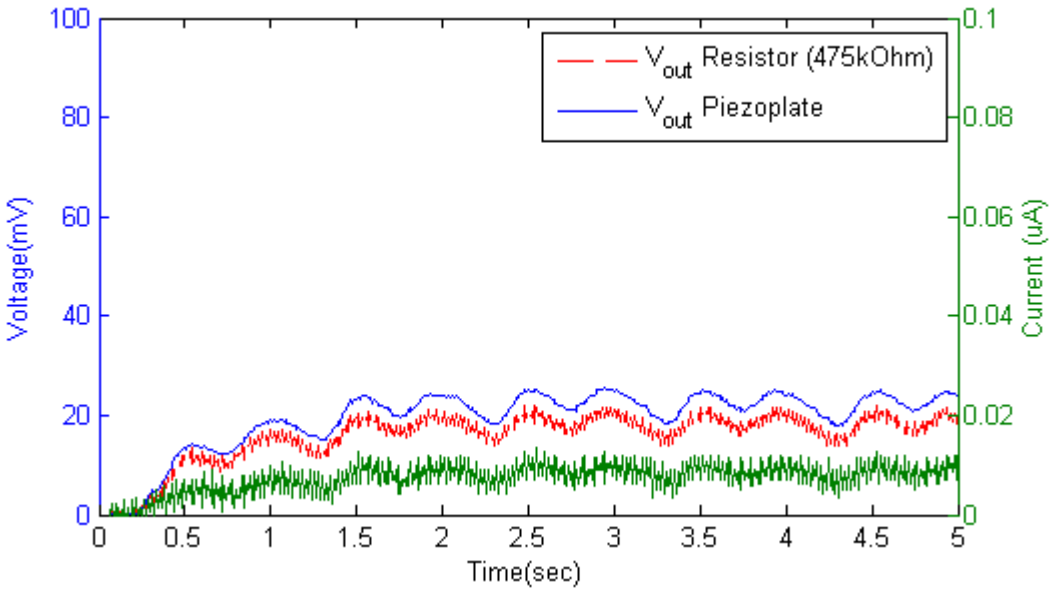

Figure E-37b. Zoomed rectified signal for pXL5 at 1Hz. Strain 2.0.

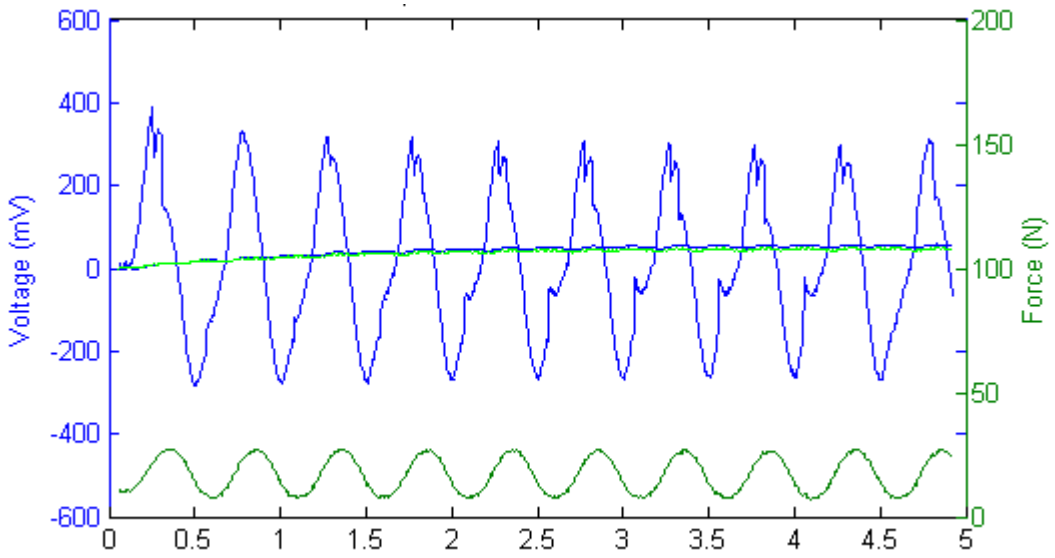

Figure E-38a .signal for pXL5 at 2Hz. Strain 2.0.

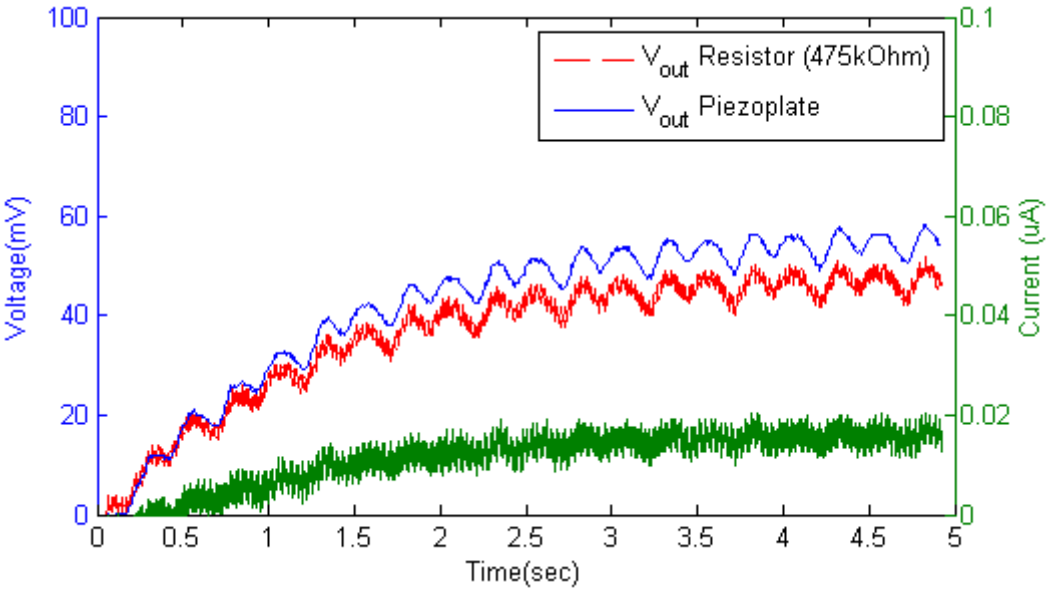

Figure E-38b. Zoomed rectified signal for pXL5 at 2Hz. Strain 2.0

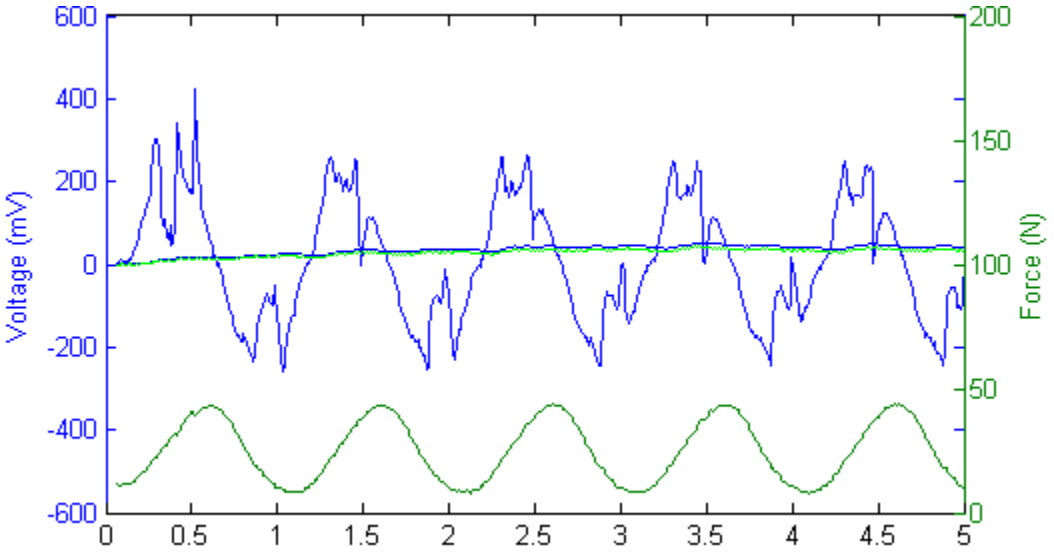

Figure E-39a .signal for pXL5 at 1Hz. Strain 4.0.

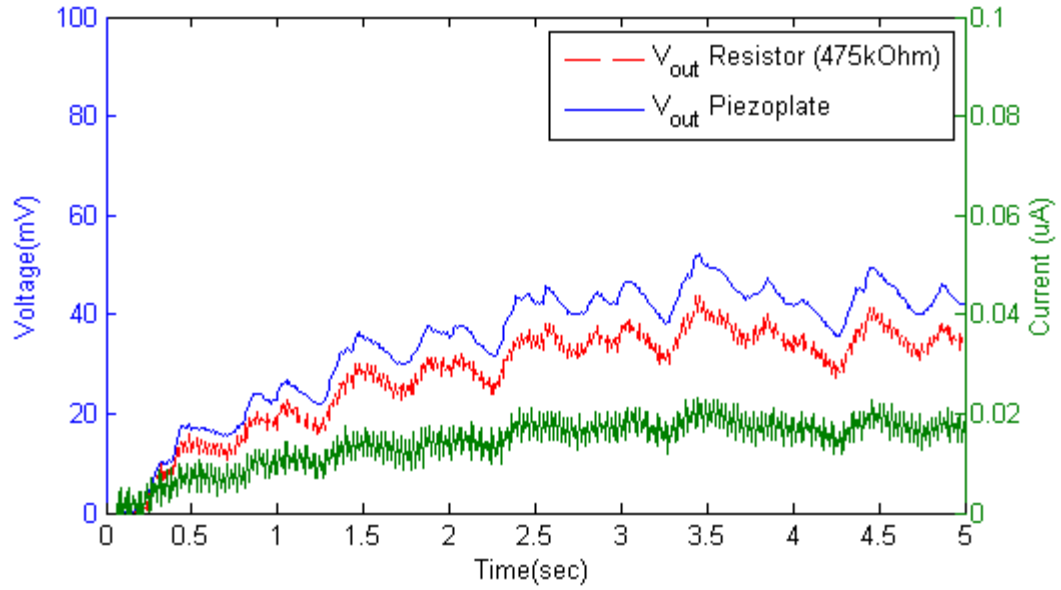

Figure E-39b. Zoomed rectified signal for pXL5 at 1Hz. Strain 4.0

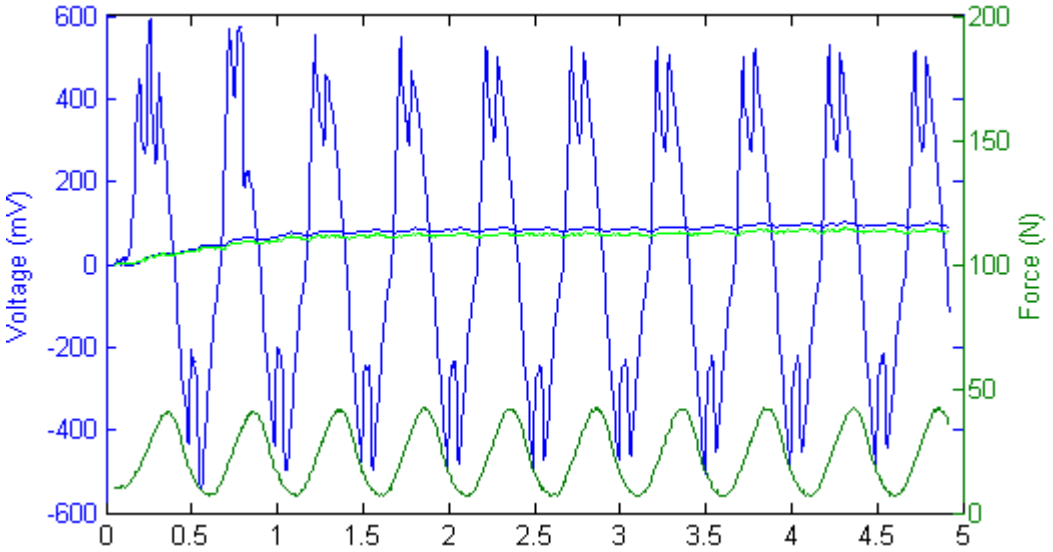

Figure E-40a .signal for pXL5 at 2Hz. Strain 4.0.

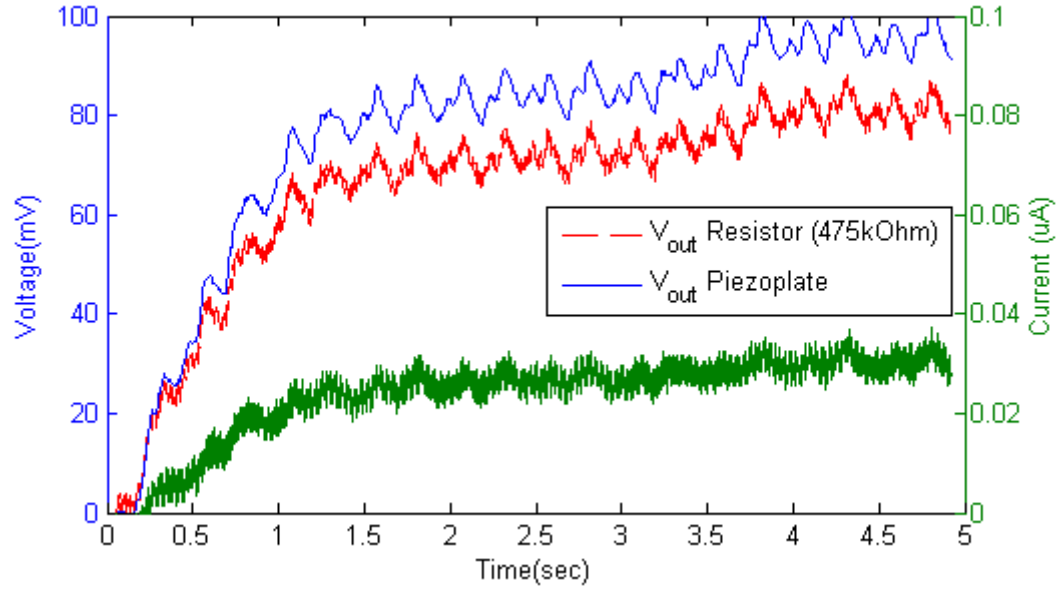

Figure E-40b. Zoomed rectified signal for pXL5 at 2Hz. Strain 4.0

Appendix E: Granted Permission for reproducing of images.

RE: Permission to replicate figures found in online documentation for thesis work
Tuesday, December 8, 2009 11:01 AM
From:
"SIMULIA Info" <sim.info@3ds.com>
To:
rperea@ku.edu
Hello Dennis,
I had to check with our legal department before sending you a response.
"Dassault Systemes Simulia Corp. ("SIMULIA") is the owner of the ABAQUS® software product and its related documentation. SIMULIA grants you, Rodrigo Dennis Perea, the one time right to reproduce the following pictures from the on-line Abaqus documentation solely and exclusively for reproduction in your thesis and for no other reproduction:

* Figure 3-1 and 3-2. (Book: Getting Started with Abaqus: Interactive Edition. Chapter 3, Section 3.1.1)
* Figure 4-2 and 4-7. (Book: Getting Started with Abaqus: Interactive Edition. Chapter 4, Section 4.1.1)

All such reproductions shall cite the sources of the drawings and include the SIMULIA's copyright notice."

Best Regards/Cordialement,

Tammy

Tamblyn Ghanem

Chief Legal Counsel
Dassault Systemes Simulia Corp.
Office: +1 401 276 8460
tammy.ghanem*@3ds.com*
Dassault Systèmes | www.3ds.com

Visit us at: **www.simulia.com**
Dassault Systemes Simulia Corp. 166 Valley Street - Providence, RI 02909-2499 USA

From: Rodrigo Dennis Perea [mailto:rperea@ku.edu]
Sent: Wednesday, December 02, 2009 5:22 PM
To: SIMULIA Info
Subject: Permission to replicate figures found in online documentation for thesis work

Dear Simulia,

I am completing a Masters of Science Thesis at the University of Kansas, entitled "Electromechanical Characterization of novel piezoelectric metallic cellular solids for spine fusion". I would like your permission to reprint only for my thesis excerpts pictures from the Abaqus online documentation:

* Figure 3-1 and 3-2. (Book: Getting Started with Abaqus: Interactive Edition. Chapter 3, Section 3.1.1)

* Figure 4-2 and 4-7. (Book: Getting Started with Abaqus: Interactive Edition. Chapter 4, Section 4.1.1)

The excerpts are to be reproduced only in my thesis written and electronic format. The requested permission is not intended to grant myself approval permission to replicate the figures in other publications than my thesis document.Your approval on this email will also confirm that you own (or your company owns) the copyright to the above-described material and that I was granted the permission to replicate the figures on my work.

If these arrangements meet with your approval, please I will appreciate if you can give me written approval by sending me a email response or by providing further information to follow.

Thank you very much.

Sincerely,

Rodrigo Dennis Perea
Graduate Research Assistant
The University of Kansas

RE: Permission to replicate figures found in online documentation for thesis work

Tuesday, December 15, 2009 5:54 AM
From:
"Rights and Permissions (ELS)" <Permissions@elsevier.com>
To:
rperea@ku.edu

Dear Mr Perea

We hereby grant you permission to reprint the aforementioned material at no charge **in your thesis** subject to the following conditions:

1. If any part of the material to be used (for example, figures) has appeared in our publication with credit or acknowledgement to another source, permission must also be sought from that source. If such permission is not obtained then that material may not be included in your publication/copies.

2. Suitable acknowledgment to the source must be made, either as a footnote or in a reference list at the end of your publication, as follows:

> "This article was published in Publication title, Vol number, Author(s), Title of article, Page Nos, Copyright Elsevier (or appropriate Society name) (Year)."

3. Your thesis may be submitted to your institution in either print or electronic form.

4. Reproduction of this material is confined to the purpose for which permission is hereby given.

5. This permission is granted for non-exclusive world **English** rights only. For other languages please reapply separately for each one required. Permission excludes use in an electronic form other than submission. Should you have a specific electronic project in mind please reapply for permission.

6. This includes permission for UMI to supply single copies, on demand, of the complete thesis. Should your thesis be published commercially, please reapply for permission.

Yours sincerely,

Natalie David

Permissions Supervisor

For future requests please visit www.elsevier.com/permissions

From: Rodrigo Dennis Perea [mailto:rperea@ku.edu]
Sent: 02 December 2009 22:39
To: Rights and Permissions (ELS)
Subject: Permission to replicate figures found in online documentation for thesis work

Dear Elsevier,

I am completing a Masters of Science Thesis at the University of Kansas, entitled "Electromechanical Characterization of novel piezoelectric metallic cellular solids for spine fusion". I would like your permission to reprint only for my thesis excerpts from a book previously published by Pergamon Press. As I understood, this publisher was sold to Elsevier and thats why I am requesting your permission.

The following book and the figures I want to replicate are:

Book: Cellular Solids: Structure & Properties.
ISBN: 0-08-035910
Authors: Lorna Gibson and Michael Ashby.
Figures: 4-2 (page 71) and 4-5 (page 75).

The excerpts are to be reproduced only in my thesis written and electronic format. The requested permission is not intended for approved permission in publications other than my thesis document.Your approval on this email will also confirm that you own (or your company owns) the copyright to the above-described material and that I was granted the permission to replicate the figures on my work.

If these arrangements meet with your approval, please I will appreciate if you can give me written approval by sending me a email response or by providing further information to follow.

Thank you very much.

Sincerely,

Rodrigo Dennis Perea
Graduate Research Assistant
The University of Kansas

Re: FW: Permission to replicate figures found in online documentation for thesis work

Thursday, December 24, 2009 8:52 AM
From: "Dan Hart" <Dan.Hart@Valpo.edu>
To: rperea@ku.edu
Dear Rodrigo,
I grant you permission to use Figure 4.9 from the textbook Introduction to Power Electronics, 1997, for the sole purpose of including it in your master's thesis.
Daniel W. Hart

Rodrigo Dennis Perea wrote:

Rodrigo Dennis Perea
Graduate Research Assistant
The University of Kansas

--- On **Wed, 12/23/09, Lewis, Vineta** ***<Vineta.Lewis@pearson.com>*** wrote:

From: Lewis, Vineta <Vineta.Lewis@pearson.com>
Subject: FW: Permission to replicate figures found in online documentation for thesis work
To: rperea@ku.edu
Date: Wednesday, December 23, 2009, 1:21 PM

Dear Mr. Perea,
Thank you for your message.
Unfortunately, Pearson Education no longer owns the rights to this text. For permission to reprint material you may contact-
Daniel W. Hart
112 Sylvan
Valparaiso IN 46383

Sincerely,
Vineta

Vineta Michelle Lewis
Permissions Supervisor
Pearson Education, Inc.
1 Lake St.
Upper Saddle River, NJ 07458
phone 201-236-3281

fax 201-236-3290

From: Rodrigo Dennis Perea [mailto:rperea@ku.edu]
Sent: Thursday, December 17, 2009 9:27 AM
To: Permissions, Glenview
Subject: Permission to replicate figures found in online documentation for thesis work

Dear Prentice-Hall,

I am completing a Masters of Science Thesis at the University of Kansas , entitled "Electromechanical Characterization of novel piezoelectric metallic cellular solids for spine fusion". I would like your permission to reprint only for my thesis excerpts from a book published by your company. The following book and the figure I want to replicate are:
Book: Introduction to Power Electronics.
ISBN: 0-02-351182-6
Authors: Hart.
Figures: 4.6 (page 117)
The excerpts are to be reproduced only in my thesis. The requested permission is not intended for approved permission in publications other than my thesis document.Your approval on this email will also confirm that your company owns the copyright to the above-described material and that I was granted the permission to replicate the figures on my work.

If these arrangements meet with your approval, please I will appreciate if you can give me written approval by sending me a email response or by providing further information to follow.

Thank you very much.

Sincerely,
Rodrigo Dennis Perea
Graduate Research Assistant
The University of Kansas

Dan Hart
Professor of Electrical and Computer Engineering
Valparaiso University

219-464-5109
Mailing Address:
Gellersen Center
1900 Chapel Dr.
Valparaiso, IN 46383

Re: Permission to replicate figures found in online documentation for thesis work

Thursday, December 17, 2009 2:22 PM
From:
"D. Sculley" <dsculley@eecs.tufts.edu>
Add sender to Contacts
To:
"Rodrigo Dennis Perea" <rperea@ku.edu>
Cc:
dsculley@cs.tufts.edu
Go for it; I'm glad somebody found them useful. :)

For the lawyers: permission is granted.

Cheers,

D.

On Wed, 16 Dec 2009, Rodrigo Dennis Perea wrote:
>Dear Dr. Sculley,
> My name is RodrigoPerea and I am completing my thesis at the University of
> Kansas for a MS in Bioengineering.
> I would like to know if I could use your pictures found at:
> http://www.eecs.tufts.edu/~dsculley/tutorial/ To illustrate the basics of a diode behavior.
> The excerpts are to be reproduced only in my thesis and will remain in my school.
> Please I will
> appreciate if you can give me written approval by sending me an email
> response or by providing further information to follow.
> Thank you very much.
>
> Sincerely,
>> Rodrigo Dennis Perea
> Graduate Research Assistant
> The University of Kansas