

Wolfgang von Schweinitz

# Plainsound String Trio "Afshari"

in 3-, 11-, 13- & 19-limit just intonation

Persian Tunes in the Modes of Dastgah-e Afshari

Harmonized in the Classical European Counterpoint Tradition

op. 67

2021

*for the Trio Coriolis*

PLAINSOUND MUSIC EDITION

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funded by the Ernst von Siemens Music Foundation

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## PROGRAM NOTE

*Wolfgang von Schweinitz*  
*Plainsound String Trio "Afshari"*  
*in 3-, 11-, 13- & 19-limit just intonation*

*Persian Tunes in the Modes of Dastgah-e Afshari*  
*Harmonized in the Classical European Counterpoint Tradition*  
*op. 67 (2021)*

*PART 1: Pishdaramad, Daramadha, Bayat-e Raje', Forud, and Rohab*  
*PART 2: Masihi, Nahib (Part 1 & Part 2), and Masnavi ("twisted")*

*The Plainsound String Trio "Afshari" was composed during the summer weeks of 2021 for the members of the Trio Coriolis, Thomas Hofer, Klaus-Peter Werani, and Hanno Simons, who have commissioned the piece, funded by the Ernst von Siemens Music Foundation. This study in non-tempered microtonal just intonation is entirely based on the traditional Persian modes assembled in the collection of old melodies called Dastgah-e Afshari or Avaz-e Afshari. In his wonderful book "The Dastgah Concept in Persian Music", Hormoz Farhat has shared many note examples and transcriptions. Some of these transcribed Persian tunes appear unaltered in my composition, namely in the Gushes (pieces) that are played after the introductory Daramad sections which establish the main mode of the set: Bayat-e Raje', Rohab, Masihi, Nahib, and Masnavi. The authentic Persian melodies are presented here in a polyphonic setting devised by relying on the old European counterpoint techniques and on the experience stemming from my long-term research of microtonal just intonation performance practice. Since the accompanying voices are always staying within the mode of the Persian tune, there are no European 5-limit triads in this harmonisation, but only various 3-limit Pythagorean chords, 11-limit and 13-limit quartertone-harmonies, and 19-limit minor triads. The basic conceptual method which I have used for developing the harmonic language was to start out with an analysis of the tunings for each scale degree in order to interpret or harmonize it accordingly, and to then usually choose the most consonant available interval sonorities, so that every note in this composition may in fact be precisely tuned by ear within its harmonic context. (WvS)*



# NOTES

## TUNING INSTRUCTIONS

The strings of the violin, viola, and violoncello are tuned in non-tempered perfect fifths. They may be retuned on stage in a lengthy procedure before the performance of Part 2.

## ACCIDENTALS

for non-tempered microtonal just intonation

Modified Extended Helmholtz-Ellis JI Pitch Notation

$\flat$	$\natural$	$\sharp$	3-limit Pythagorean accidentals: the series of untempered perfect fifths / fourths; alteration by an Apotome 2187/2048 (circa 113.7 cents)
$\flat$	$\natural$	$\sharp$	11-limit accidentals: alteration by an Undecimal Quartertone 33/32 (circa 53.3 cents), augmenting the perfect fourth 4/3 to represent 11/8
$\flat$	$\natural$	$\sharp$	13-limit accidentals: alteration by a Tridecimal Third-tone 27/26 (circa 65.3 cents), diminishing the major sixth 27/16 to represent 13/8
$\flat$	$\natural$	$\sharp$	13-limit accidentals: alteration by a Tridecimal Schisma 352/351 (circa 4.9 cents), diminishing the 32/27 Pythagorean Minor Third to 13/11
$\flat$	$\natural$	$\sharp$	19-limit accidentals: alteration by a 19-limit Schisma 513/512 (circa 3.4 cents), augmenting the 32/27 Pythagorean Minor Third to 19/16

Performance Duration : circa 20 minutes

PART 1 : circa 11 minutes & PART 2 : circa 9 minutes

PART 1 : Pishdaramad, Daramadha, Bayat-e Raje', Forud, and Rohab --- PART 2 : Masihi, Nahib (Part 1 & Part 2), and Masnavi ("twisted")

## The Mode of AFSHARI

based on Finalis C

The various tunings of the scale degrees

This piece features the modes of Dastgah-e Afshari, based on the Finalis C. The 2nd, 4th, 5th, and 7th above the Finalis are usually tuned as Pythagorean notes (i.e. 9/8, 4/3, 3/2 and 16/9). In the mode of Afshari, the sixth above the Finalis is "moteqayyer", i.e. it has two alternative tunings; it is mostly tuned as a neutral sixth (13/8) above the Finalis, but sometimes it is raised by a Third-tone (27/26) and played as a Pythagorean major sixth (27/16) above the Finalis and a Pythagorean semitone or Limma (256/243) below the seventh scale degree. The 3rd above the Finalis is always "koron", i.e. a small neutral third (39/32, or 342.5 cents) above the Finalis and a large neutral third (16/13 or 359.5 cents) below the fifths scale degree. Thus the Pythagorean minor third (32/27) between D and F (& G and B-flat) is divided into two neutral tones or three-quartertone steps with slightly different sizes (13/12 or 138.6 cents, and 128/117 or 155.6 cents). The 2nd below the Finalis is tuned an 11-limit quartertone (33/32 or 53.3 cents) higher than the 7th above the Finalis, producing an 11-limit large neutral tone or three-quartertone step that is about 5 cents smaller than the 13-limit interval between the 3rd and 4th scale degrees (12/11 or 150.6 cents). The 4th above the Finalis may be embellished by an 11-limit quartertone trill (33/32 or 53.3 cents) in some cadences.

The harmonic counterpoint of this composition is conceived in such a way that nearly all occurring notes may be precisely tuned by ear, either as 3-limit, 11-limit, 13-limit, or 19-limit consonances. The pitches of F and B-flat are occasionally raised by a 19-limit Schisma (513/512 or 3.4 cents) in order to employ the expressive 19-limit minor thirds and minor sixths, and whenever F or B-flat are tuned as 19-limit minor thirds above D or G (19/16 or 297.5 cents), yet another large neutral tone or three-quartertone step (57/52 or 158.9 cents) is established between E-koron & F or A-koron & B-flat. This minute pitch inflection of the 4th and 7th scale degrees will come about automatically when their consonance is optimized within the harmonic context; and it also introduces an alternative, minutely diminished whole tone step between F & G or B-flat & C (64/57 or 200.5 cents) and a minutely augmented semitone between A & B-flat (19/18 or 93.6 cents). - And sometimes the standard Pythagorean pitch of B-flat may also be lowered by a Tridecimal Schisma (352/351 or 4.9 cents) by tuning the 7th scale degree as a consonant 11/4 sonority below the drone of an E-koron in the violin; in this case the B-flat will be an 11-limit large neutral tone (12/11 or 150.6 cents) higher than A-koron.

The two Gushes (pieces) Rohab and Masihi, which are part of the repertoire of Dastgah-e Afshari, are in the mode of Shur, based on Finalis D, whereas the Gushe Bayat-e Raje', which is based on Finalis G and features the high register Oj, has a mode of its own which is related to the mode of Bayat-e Esfahan. Gushe Nahib is associated with the mode of Mahur, featuring the Pythagorean major third and major seventh. And the vagrant Gushe Masnavi returns to the mode of Afshari.

Basic 3-limit, 11-limit & 13-limit tuning of the mode of Afshari

								major whole tone	large neutral tone	
								8 : 9	117 : 128	
								(203.9 c)	(155.6 c)	
			Pythagorean minor third							
			(294.1 c)							
	large neutral tone	major whole tone	small neutral tone	large neutral tone	major whole tone	small neutral tone			Limma	major whole tone
	11 : 12	8 : 9	12 : 13	117 : 128	8 : 9	12 : 13			(90.2 c)	8 : 9
	(150.6 c)	(203.9 c)	(138.6 c)	(155.6 c)	(203.9 c)	(138.6 c)				(203.9 c)

  

Violin: Finalis, Ist, 32:33 (53.3 c), Aqaz & Shahed

Viola: Finalis, Ist, 32:33 (53.3 c), Aqaz & Shahed

Cello: 11/4, 4/1, 9/2, 13/4, 8/3, 11/4, 6/1, 13/2, 9/2, 16/3, 8/1



# Plainsound String Trio "AFSHARI"

in 3-, 11-, 13- & 19-limit just intonation

## PART 1

Pishdaramad, Daramadha, Bayat-e Raje', Forud, and Rohab

Pishdaramad - Prelude in the mode of AFSHARI

Wolfgang von Schweinitz  
op. 67 (2021)

1 *♩. circa 48 - 54 con rubato, e sempre non vibrato*  
*con sord. (Tourte)* 3

*sonore (vicino al pont.)* 13/4

*con sord. (Tourte)* 2

*sonore (vicino al pont.)* 13/4

*con sord. (Tourte)* 4

*sonore (forse un poco vicino al pont.)* 1

5 *Trills may be played 'cantabile' at a moderate, variable speed.*

19/6 13/2 1

8/3 *portamento* 11/4 8/3

16/13

8

19/6

16/13

4

11

26/9

13/4

11/4

14 *portamento* 13/4 4 11/6 *ord. 3*

*portamento* *ord.*

*al pont.* *ord. 16/13* *ord.*

*port.* 1 2 (+27c) 1 *sonore*

4  
19 **2** *poco più mosso* Daramad 1  
senza sord. *piano* *3* *H* 12:13 (139c)

22  
9/4 18:19 (94c) 19:6 19:13 with viola 18:13

25  
13/6

28  
19/8 19/8 portamento portamento

31  
16/13 with viola 11/6 **3** Daramad 2  
*sonore*

34

4 1 4

arco pizz. arco pizz. arco pizz.

Detailed description: This system covers measures 34 to 36. The top staff (treble clef) features a melodic line with various ornaments and a first ending bracket above measure 35. The middle staff (alto clef) contains a complex rhythmic pattern with many sixteenth notes and slurs. The bottom staff (bass clef) provides a steady accompaniment with alternating 'arco' and 'pizz.' markings.

37

3

arco pizz. arco pizz.

Detailed description: This system covers measures 37 to 39. The top staff continues the melodic development with a triplet of eighth notes in measure 38. The middle staff has a similar rhythmic texture to the previous system. The bottom staff continues the 'arco/pizz.' pattern.

40

4

arco pizz. arco pizz. arco pizz.

Detailed description: This system covers measures 40 to 42. The top staff shows a melodic phrase with a fourth interval marked above measure 41. The middle staff continues with intricate rhythmic patterns. The bottom staff maintains the 'arco/pizz.' accompaniment.

43

portamento cresc.

arco pizz. arco pizz. arco pizz.

Detailed description: This system covers measures 43 to 45. The top staff features a 'portamento' marking over a melodic line and a 'cresc.' marking. The middle staff has a 'cresc.' marking under a rhythmic passage. The bottom staff continues the 'arco/pizz.' accompaniment.

46

poco ritenuto

11/6 13/8

arco pizz. arco pizz. arco pizz.

Detailed description: This system covers measures 46 to 48. The top staff begins with a 'poco ritenuto' marking. The middle staff features a 11/6 time signature change in measure 46 and a 13/8 time signature change in measure 47. The bottom staff continues the 'arco/pizz.' accompaniment.

50 **4** poco più mosso

*piano*

*pizz. arco* *pizz. arco*

*H arco*

*sf* *piano* *poco cresc.* *5:4* *sonore*

53

*sonore*

*sonore*

*poco cresc.* *5:4*

*These trills may gradually get a bit faster.*

56

*poco cresc.* *11/6* *11/4* *gliss.* *5:4* *4* *1*

59

*poco cresc.* *gliss.* *1* *poco cresc.* *5:4*

62

*poco cresc.* *poco cresc.* *gliss.* *1* *4*

5 Bayat-e Raje' *poco più mosso* These trills may gradually get a bit faster. 7

65 *piano* *poco cresc.* 5:4

68 *poco cresc.* 5:4

71 *poco cresc.* 5:4 *portamento* *gliss.*

74 *poco cresc.* 5:4 *avanti* *poco cresc.* 5:4

77 *poco ritenuto* *gliss.* *gliss.* *piano* *piano* 3 *piano*

8  
81 *a tempo* **6** *gliss.*

*poco cresc.*

84 *gliss.* *gliss.* *gliss.* *gliss.* *poco cresc.* 5:4 5:4

*poco cresc.*

87 *gliss.* *poco cresc.* 5:4 *poco cresc.*

*poco cresc.*

90 5:4

93 *11/6* **7** Forud *piano* *gliss.* *sonore* *poco cresc.* 5:4 *piano*

96

13/8

poco cresc.

5:4

99

8 Rohab *ancora più mosso*  $\text{♩}$  circa 60 - 66

sf

piano flautando

marcato quasi forte

marc.

sf

piano luminoso (poco vicino al ponticello)

103

marc.

107

0 4

marc.

111

marc.

115

ritenuto

cresc.

cresc.

marc.

ord.

cresc.

Masihi  $\circ$  circa 40 - 44

1

*piano dolce*

*piano intenso e molto sonore*

*piano leggero e non legato (use open strings whenever possible)*

Accents should be performed with increased bowing speed (with no additional bow pressure), and the notes with smaller note heads may be played a bit softer.

5

1

9

2

13

3

17

4

portamento

19/12

*sf*

21 **5** *ritenuto*

**6** Nahib - Part 1  
25 *molto più mosso*  $\circ$  circa 60 - 66

*forte* 1

*forte* 3

*forte* 4

29 **7** **8**

33 *portamento*

37 **9**

*dim.*  $\triangleright$  *piano*

*dim.*  $\triangleright$  *piano*

*dim.*  $\triangleright$  *piano*

**10** poco meno mosso  $\circ$  circa 54 - 60

**11**

42

*piano caloroso (al tasto)*

*piano caloroso (al tasto)*

*mezzo forte espressivo*

19/8

19/12

19/12

**12**

46

*ordinario* *al tasto*

*ordinario*

*al tasto*

*ordinario*

19/6

**13**

50

*ordinario* *al tasto* *ordinario*

*ordinario*

*al tasto*

*ordinario*

*ordinario*

19/12

**14**

54

*al tasto*

*al tasto*

*al tasto*

19/12

58

Musical score for measures 58-61. Treble clef, bass clef, and alto clef. Includes fingerings (0, 4, 1, 4) and accents (>).

16

17

62

Musical score for measures 62-65. Treble clef, bass clef, and alto clef. Includes fingerings (0, 1, 3, 2, 4, 0, 1, 0, 1) and the instruction "ordinario".

18

66

Musical score for measures 66-69. Treble clef, bass clef, and alto clef. Includes fingerings (2, 4, 0, 1, 1, 0, 4, 19/2, 19/6, 0, 4) and instructions "port.", "al tasto", and "portamento".

19

70

Musical score for measures 70-73. Treble clef, bass clef, and alto clef. Includes fingerings (0, 4, 0, 1, 19/6, 0, 2, 0, 4, 0, 3) and instructions "portamento", "port.", and "poco crescendo".

74

Musical score for measures 74-77. Treble clef, bass clef, and alto clef. Includes fingerings (0, 2, 0, 3, 0, 1, 0, 1, 0, 4, 0, 0, 4) and instructions "port.", "ritenuto", "crescendo", "quasi forte", and "piano".

Masnavi ("twisted")

ancora poco più largo o circa 48 - 54

79

79 *poco forte*

80 *poco forte*

81 *poco forte*

82 *poco forte*

83

83 *poco crescendo*

84 *poco crescendo*

85 *poco crescendo*

86 *poco crescendo*

87

87 *poco cresc.*

88 *poco cresc.*

89 *poco cresc.*

90 *poco cresc.*

91

91 *cresc.*

92 *cresc.*

93 *cresc.*

94 *cresc.*

95

95 *ff*

96 *ff*

97 *ff*

98 *ff*

99 **23**

*piano* *poco cresc.* *cresc.*

*piano* *poco cresc.* *cresc.*

*piano* *poco cresc.* *cresc.*

104 **24**

*cresc.* *cresc.*

*cresc.* *cresc.*

*cresc.* *cresc.*

109 **25**

*cresc.* *ff* *piano*

*cresc.* *ff* *piano*

*cresc.* *ff* *piano*

114 **26**

*cresc.* *ff* *meno f*

*cresc.* *ff* *meno f*

*cresc.* *ff* *meno f*

121

*piano e leggiero*

*piano*

*piano*

128 **27**

*sf* *molto piano* *ritenuto* *molto lento* *poco a poco sul tasto*

*sf* *molto piano* *poco a poco sul tasto*

*sf* *molto piano* *poco a poco sul tasto*