<u>An Archive of the musical compositions by Herb Bielawa</u>

Composition: **Piece of π** – piano and MIDI sequence

Date: 1989
Duration: 13:59
Recording: by Herb Bielawa

Program Note:
The number I always used in school for PI was 3.1416. It actually goes on forever (as far as we know). The idea to use it for composition came to me in several stages. First I happened to read Carl Sagan's novel *Contact* in which the scientist, Dr. Eleanor Arroway fusses over PI throughout the whole story hoping to find some direct meaning in it (....from God?..) Then I quite accidentally saw a poster on the wall of the engineering building at San Francisco State that posted nearly nine thousand positions of the number. (The circular "O" rings in the ill-fated Challenger also burned up around that time as well.) I, essentially, had to do it, or at least try. With only ten possible numerals in base ten math, my plan gave me only ten musical intervals since two of the musical twelve (minor and major sevenths are missing) the music has a strangely more consonant quality than my other music. Such a work could, furthermore, hardly escape the drive toward some sort of revolving order, cyclic ongoing rhythm like the endless outer surface of a turning wheel. In some instances the PI intervals are used up with incredible speed as in the introduction, where MIDI, in a sense states flat out the PI interval content that the piece will use when the piano enters. Listening to PI intervals unfold directly in their unique PI order is interesting for a while, but soon reveals numbing aimlessness; an impossible situation for musical purposes. I did discover many little pockets of musical potential, however. There are many "dead spots" as well (repeated notes, unbalanced triadic forms, dangling classic diminished seventh chords and the like) I did NOT avoid the "dead spots," but they had to be put into a special perspective and gracefully dispatched as smoothly and as quickly as possible. The "good" intervals were then used as a kind of subset, a store of limited pitch classes whose notes are shaped into music, a process that gradually grew by the insertion of the ever-next intervals that PI presented. My approach was not dissimilar to that of serial composition, my row, of course, being infinitely longer that 12 notes. How to end such a piece becomes a philosophical crisis. Does one fade out? cadence?, stop? slow up? speed up? Quitting the piece in any fashion necessitates a structural abortion at best. Besides being an infinite number, PI is also referred to by mathematicians as an irrational number. Indeed it is! For me it became a mysterious and haunting one. Altogether I used the first 866 numerals of PI for this work:
3.14159265358979323846264338327950288419716939937510582097494459230781 64
06286208998628034825342117067982148086513282306647093844609550582231725 3
59408128481117450284102701938521105559644622948954930381964428810975665 9
33446128475648233786783165271201909145648566923460348610454326648213393 6
07260249141273724587006606315588174881520920962829254091715364367892590 3
60011330530548820466521384146951941511609433057270365759591953092186117 3
81932611793105118548074462379962749567351885752724891227938183011949129 8
33673362440213949463952247371907021798609437027705392171762931767523846 74

81846766940513200056812714526356082778577134275778960917364409012249534301465495853710507922796892589235420199561121234418159813629774771309960518707211349999998372978049951059731732816096318595024459345534690830264252230825334468503526193118817101000313783887

Performance Notes:

Managing the MIDI part for Piece of π can be done in two ways: Run the sequence in real time with Macintosh, MIDI interface, synthesizer and sound system on stage or play a prerecorded version through a suitable sound system. Of these two options, the recorded one is the least problematic and cumbersome. In either case the sequence is a mono signal even though it is found on both channels. When I perform the work I prefer one speaker set close to the left leg of the piano with its back more or less flush with the piano's straight left side, which means the speaker sits generally under the piano near the pedal structure. If one chooses to use two high mounted speakers, a third monitor speaker should also be used and set close to the pianist (on the left). Once the tape is started there should be no reason for stopping it for the duration of the performance. Interpolating the piano entrance around measure 215 is a simple matter of waiting for the cue from the tape. The sound level of the tape should be rather full giving the sensation of a surrounding flood of sound that almost engulfs the piano. It should NOT, however, engulf the piano. It should not be so high as to intimidate or swallow the piano part. An important step in the preparation of this piece for a performance, then, is finding the best sound balance. Of course, this has to be done before an audience is present. It is also possible for a sound-monitoring person in the audience to adjust the gain, assuming he or she
has that control at hand. If it is desired to use the given Piece of n sequence (Mark of the Unicorn's Professional Performer) with other patches it is permissible to do so provided all envelope characteristics are kept. They must be the same as the ones in the prototype patch library. Long and slow rising and falling envelopes found at the beginning, the middle and the ending are crucial. "Ping" -shaped patches that dominate the work are also crucial. Do not use any steady state patches in this work! Needless to say, funky, sci-fi, cute, or other novelty patches are not appropriate for this piece.