

# CoCoALib

	2023-9				2023-10				2023-11				2023-12				2024-1				2024-2			
	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	1	2	3	4	5	6	7
CoCoA																								
CoCoALib	CoCoALib																							
CoCoALib - CoCoALib-1.0																								
Sort out RingElem, RefRingElem, (...)																								
List of all functions in CoCoALib																								
printing polynomials																								
keywords in documentation																								
Cleanup header for ring classes (...)																								
Error Codes																								
automatic creation of all function (...)																								
Introduce PartialHom																								
Ideals of polynomials																								
LT over QQ: surprisingly slow																								
IdealOfPoints with generic coeffs																								
New datastructures directory																								
Convert DUPFF code to C++																								
Better GCD																								
Design problem in ideals																								
Convenience ring ctors and homs																								
Buchberger-Moeller (parent task)																								
Buchberger-Moeller: fast modular (...)																								
Buchberger-Moeller: impl via (...)																								
Buchberger-Moeller: input conversions																								
Makefile dependencies																								
RingOf rather than owner? (and (...)																								
Iterated CanonicalHom																								
GCD normalization (e.g. monic)																								
Convert old "task table" into redmine																								

<p>IsStdGraded: add for PPOrdering, (...)</p> <p>PPWithMask needs checking</p> <p>Example for change of coordinates (...)</p> <p>HilbertBasis from Normaliz: full-lattice (...)</p> <p>Generator for random ring elements</p> <p>Documentation for QBGenerator needs (...)</p> <p>No test for QBGenerator</p> <p>Approx QIR</p> <p>Transcribe C4 code for GCD in QQ[x]</p> <p>Multivariate lifting</p> <p>Move the various &lt;matrix&gt;::mySetEntry (...)</p> <p>Forward declarations</p> <p>Eliminate class RefPPMonoidElem?</p> <p>Store unique copy of FF(p) in GlobalManager</p> <p>Global setting: to use IsProbPrime (...)</p> <p>PrimeField -- new fn?</p> <p>Modules design: brainstorming</p> <p>Compilation on M\$Windows: Visual (...)</p> <p>FreeModule: unique copy?</p> <p>Add doc for ApproxPts2</p> <p>submodule constructor different (...)</p> <p>C++ nasty surprises</p> <p>Why is DMPI slower than DMPClean?</p> <p>Module homs</p> <p>Missing documentation and tests (...)</p> <p>CoCoAServer: what future, what (...)</p> <p>Resolution/morse: integrate Mario (...)</p> <p>add resolution data type</p> <p>implement algorithm(s) for resolutions</p> <p>PPMonoidElemAlias: redesign PPMonoidElem (...)</p> <p>add myHilbertSeries member field (...)</p> <p>add myJBMill member field to ideal</p> <p>NewFreeModule of dimension 0</p> <p>Minimal syzygies (optimized implementation)</p>	
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<p>           Allow user to give a name to a (...)            Error names and error messages (...)            Semantics of IsPrintedWithMinus            Improve UPoly eval at BigRat for (...)            MemPool: order free blocks?            Polynomial multiplication (product (...)            Port RealRoots to C++            Eigenvectors            Which sets of generators in an (...)            LinearSimplify: port to CoCoALib            Unique copies of rings -- smart (...)            Clang: automatic bug finding            Documentation: write doc for RingDenseUPolyClean            Quick/correct flag for bool3 fns            Fn to "flatten" multiple polynomial (...)            Make squarefreefactor work in multiple (...)            FloatStr uses too much memory            Functions to clean up a factorization            elim using RingTwinFloat triggers (...)              add myResolution member field (...)            Reconsider overloaded virtual mem (...)            Subrings            Temporary file for experimentation            FloatApprox for TwinFloat values?            Documentation for ReductionCog            Allow use of RingElem instead of (...)            Split SparsePolyRing.H into two (...)            Investigate using cmake for configuration            New function for printing with (...)            Implement gin (generic initial (...)            Problem with template instantiation (...)            configure: check all libraries (...)            Redesign CRTMill            Wikipedia         </p>	
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Gaussian integer and rationals (...)  
 Complex twin-floats  
 Shadow CoCoA namespace to help (...)  
 What is test-Dynamic1.C  
 Buchberger-Moeller: add option (...)  
 Unique copies of free modules?  
 Optimized algorithms for implicitization (...)  
 Laurent polynomials  
 Integrate Janet/Pommaret basis (...)  
 factor: multivariate + finite characteristic  
 Matrix determinant over multivariate (...)  
 Credits to CoCoALib contributors  
 Accumulator (like a geobucket)  
 MemPool: make it easier to get (...)  
 PPMonoid: add fn to check for overflow (...)  
 Use DivMask inside QBGenerator  
 myAddMul in poly rings  
 PolyAlgebraHom (PolyRingHom) evaluate (...)  
 Fault tolerant rational reconstruction: (...)  
 Remove cruft from test files  
 Add more operations between modules (...)  
 Example database: Slow ideal equality (...)  
 Noncommutative algebra "of solvable" (...)  
 Betti numbers, betti diagram  
 Extend homomorphism to polynomial (...)  
 Addition of sparse (multivariate) (...)  
 View PP exponent vector (and order (...)  
 Problem with GBasis in tower of (...)  
 Investigate using Boost.build instead (...)  
 configure: have option to say to (...)  
 GlobalManager: initialization compatible (...)  
 ExternalLib-CDD: (needed by GFan)  
 CoCoALib cone  
 PPMonoid with 1 extra "exponent"?

CRTMill::myAddInfo accept modulus (...)  
 Makefile: problem not seeing when (...)  
 GroebnerFan/ExternalLib-GFan: improve (...)  
 threadsafety: Scott Meyers's advice (...)  
 finite fields: global register (...)  
 Remove refcounts from RingElem?  
 No doc for DistrMPolyInIFpPP  
 Clean code for DistrMPolyClean  
 SmallFpImpl: make it faster  
 vector of "indets" in each PPMonoid?  
 PPOrdering: use it to compute WDeg?  
 Alg Extn by non-zero dim ideal  
 FastCmp for degree -- useful?  
 PPMonoid pseudo-ctor without explicit (...)  
 GenRepr in CoCoALib?  
 F5 with 3 args?  
 Sparse matrices  
 MachineInt: function for checking (...)  
 Generalize grading matrix  
 UIBC: need include file in RingWeyl.C  
 Make Mario's new code threadsafe  
 factor is very slow on some simple (...)  
 Differential algebra  
 SparsePolyIter: make more compatible (...)  
 GINV: alex basis  
 NewPolyRing: tidy up the many different (...)  
 PPMonoidSparse: comparisons are (...)  
 IsIrred: correct design?  
 SmallFpImpl: different repr for (...)  
 bool3: add some logical operations?  
 factor: too slow on largish multivariate (...)  
 Impl faster multiplication for (...)  
 DistrMPolyInIPP::myPushFront and (...)  
 IsIrred3: fast 3-way irred test (...)

myIsEqual, myCmp: direct comparisons (...)  
 SmallFpDouble: which impl of InvMod (...)  
 External libraries: keep copy of (...)  
 Read input from SymbolicData database  
 New function: quorem for univariate (...)  
 Hilbert Driven GBasis  
 Design GBMill  
 Fn to read symbol range (SymbolRange)  
 Documentation: check layout of (...)  
 Printing TwinFloat as (rational) (...)  
 LinDepMill: Mill for linear dependencies  
 Slow NF example  
 Weights in ElimMat?  
 ex-PolyIterator  
 QIR/RealRootRefine: improve behaviour (...)  
 GFan: require version newer than (...)  
 GCD: add special case if args are (...)  
 Poly ring homomorphism to change (...)  
 C++11: Mario's Hilbert scheme code  
 GlobalManager: name of object in (...)  
 RowMat, ColMat with arg an empty (...)  
 New "LF" function which is based (...)  
 JanetBasis gives error indet index (...)  
 GroebnerFan: slow examples  
 Printing ring for ideals (or just (...)  
 GroebnerFan: ERROR: Matrix must (...)  
 Slug: MakeTermOrd (rk calls in (...)  
 invalid pointer in "free"  
 WEB SITE: HTML is not clean!  
 Ctors for exceptions/errors  
 Pseudo-zero-dim ideals  
 Better printing of negative coeffs  
 SqFreeFactor: should it work over (...)  
 Organize better the documentation (...)

<p>mySquare and myPowerSmallExp</p> <p>New fn: transform ideal with ring (...)</p> <p>Printing for RingElem</p> <p>Clean up revised RatReconstructByContFrac (...)</p> <p>Upper bound for value of poly in (...)</p> <p>Matrix rank is slow (over QQ)</p> <p>Non-standard DegRevLex (NonStdDegRevLex, (...)</p> <p>New function: Threadsafe RandomLinearForm (...)</p> <p>exgcd; solve Bezout equation</p> <p>Make a poly ring QQ[x,y,z] also (...)</p> <p>Ideal equality</p> <p>Ideal Ops: sort-cuts for trivial (...)</p> <p>Port old "clever" code for matrix (...)</p> <p>Improve RealRoots: compute sqfr (...)</p> <p>Improve RootBound</p> <p>All PPs of given wdeg</p> <p>gcd: low degree but big coeffs (...)</p> <p>RandomUnimodularMat is slow with (...)</p> <p>French students' example with GFan</p> <p>Create two separate radical fns (...)</p> <p>DynamicBitset::lamAll1s</p> <p>Unified Gaussian reduction impl</p> <p>Benchmarks?</p> <p>C++17: notes about updating</p> <p>slimgb: Brickenstein, singular</p> <p>Clean out OLD CODE?</p>	
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